SUPPLEMENT.

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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No. 2100.—VOL. XLV. LONDON, SATURDAY, NOVEMBER 20, 1875. PRICE (WITH THE JOURNAL) SIXPENCE. PER ANNUM, BY POST, £1 4s.

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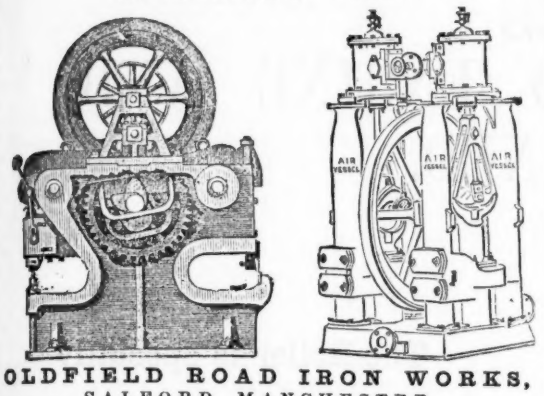

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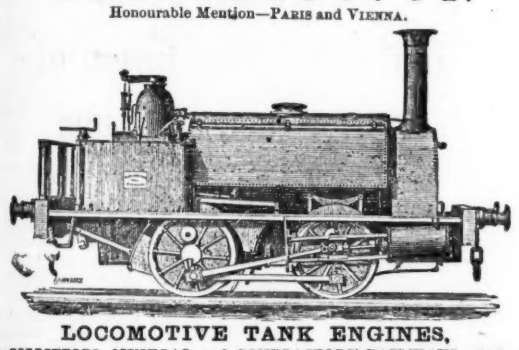

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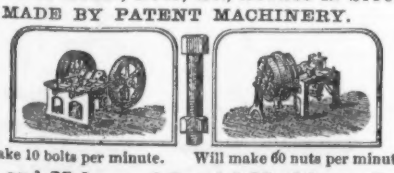

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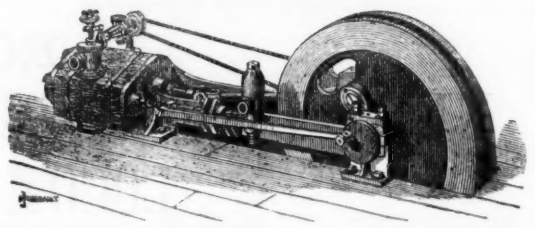

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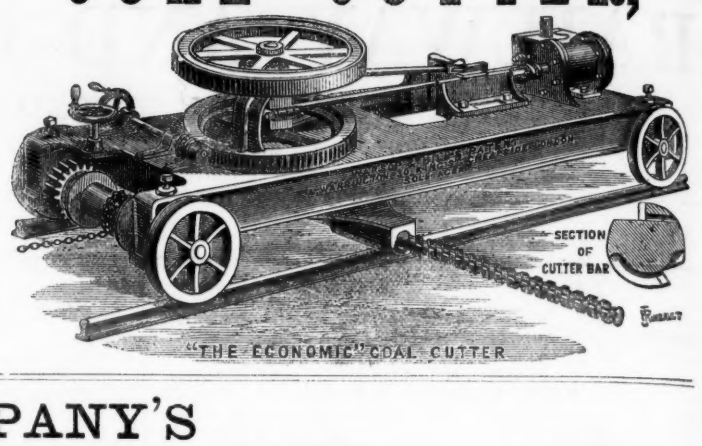

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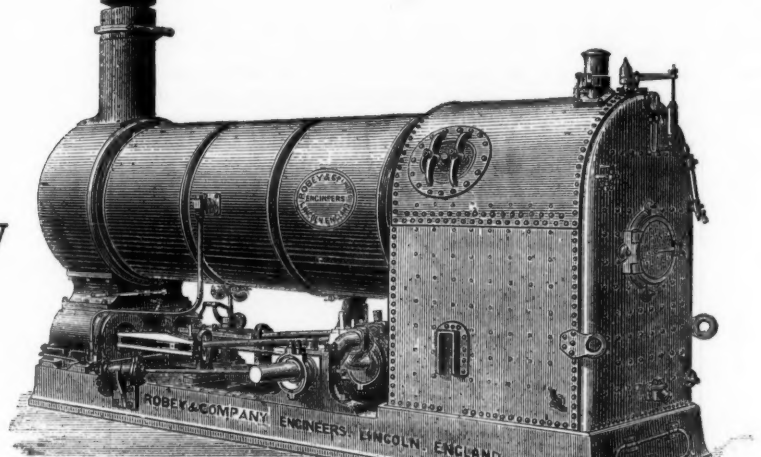

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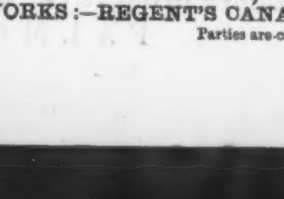
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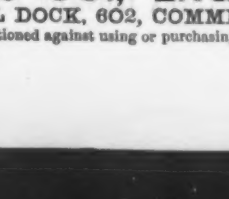
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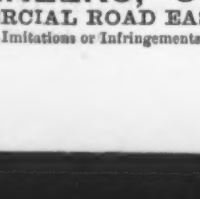
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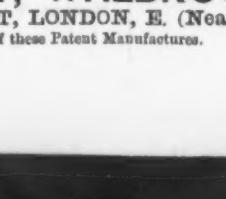
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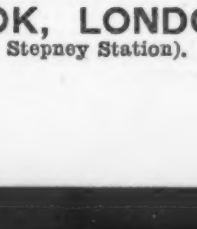
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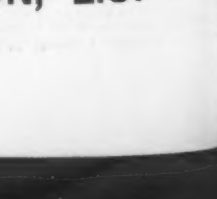
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Original Correspondence.

BLASTING BY ELECTRICITY—THE DYNAMO-ELECTRIC BLASTING APPARATUS.

SIR,—With reference to the notice in last week's *Mining Journal* of our Dynamo-Electric Blasting Apparatus, we are sorry to find that your opinions differ from our own, and, in fact, from what a considerable experience has clearly proved. We, therefore, beg to call your attention to the following notes, in which we point out the points in which we differ.

1.—The weight of the dynamo-exploder—from 50 to 60 lbs.—has never been found too heavy for carrying; the more so, as the instrument does not require to be shifted about as a rule.

2.—The suggestion that this instrument "would be" useful for military purposes ought to read "*is* useful," considering that our own, as well as all European military administrations, have introduced these very machines, and some to a great extent.

3.—Electric blasting is such an accomplished fact that its advantages—even in its present state of perfection—have never been denied, although the desire of further progress undoubtedly exists, as well as in all other matters.

In continuation of Note 1 we may add that we did formerly construct a lighter machine of 28 lbs. weight, but practical experience showed us that it was a heavier and more compact instrument, such as we now make, which was suitable for the use of the miner. We hope these remarks will lead to a more favourable opinion of a machine whose capabilities we possess so many data to prove.

Queen Anne's-gate, Nov. 17. SIEMENS BROTHERS.

THE COTTESWOLD IRONSTONE.

SIR,—I fear Mr. Owen cannot claim much credit for his supposed correlation of the Cotteswold beds with those of Cleveland, when for many years past this has already been shown to be the case by Lycett, Moore, Wright, and other geologists who have written of this district. Examinations of the beds in the Cotteswolds were, many years ago, made by several Welsh ironmasters, the result always being that they proved too poor to be profitably employed. Although Mr. Owen states he has obtained from 20 to 25 per cent. of iron from them, which he might possibly do from special bands, my own experience of many analyses is that there is a greater probability of their yielding an average of only 16 or 17 per cent. of iron, which is also about what they yield in their passage through Somersetshire and Dorsetshire. X.

CALIFORNIAN MINES, AND BRITISH CAPITALISTS.

SIR,—Your liberality in admitting letters to your valuable columns encourages me to take up my pen, but I am especially induced to do so by reflecting upon the contents of a letter from a "Member of the Stock Exchange," together with the reply in the Journal of Nov. 6, signed "An Outsider." Both letters, deploring the ruin brought upon investors in foreign mines, seem to trace the cause to the "inordinate demands on the part of vendors and promoters." This I believe to be true, at the same time I think that most of the evil has been unavoidable, and traceable to the ignorance of investors. The mines situated in California and Nevada, introduced to the London market in 1869-70, found buyers, for John Bull seemed to be in a speculative mood, and craved for something gigantic—the bigger the sum wanted the more likely to get it. It was quite natural that promoters and vendors should take advantage of this temporary insanity on the part of the investing public. I was a resident in San Francisco at the time that the gigantic swindles were on the market. We in California could only exclaim, "How can the Britishers be such fools?" Yet fools they continued until the grand diamond swindle of Arizona was exposed, then a check was given to the rage for mining adventures. Perhaps I am correct in saying that not one American mine in a hundred has proved a success, and the natural consequence shows itself in the fact that no one can now be found willing so much as to talk about the purchase of a mine; the business has come to a dead lock, and will require years for its reanimation. "Member of the Stock Exchange," and also "Outsider," intimate generally that some change is necessary, but they do not define what is wanted. Some blame is attached to the promoters, how far this is true I do not know, but for the benefit of those who really desire to introduce a sound system permit me to give you my experience.

I left this country for California in 1849, and have been connected with its commerce ever since. The owners of mining property in that country were indignant at the mining swindles successfully floated in London, for they said, "A day will come when not one capitalist in London will look at a Californian mine, and we, as well as the innocent investors, will be permanently injured." Under these circumstonces it was suggested that, "If someone well and favourably known in California would undertake the sale of mines in England upon an honest basis the system would prove a success, and be the means of enriching both countries." That office I undertook to fulfil. I left San Francisco well furnished with documents testifying to my own personal trustworthiness, and with confident predictions as to my immediate success. The considerations upon which my success was predicted appeared quite logical. It was said, "If British investors can be found ready to take up what we know to be bad adventures, surely they will at once recognise the safety and the honesty of the system we intend to introduce." Animated by hopes such as these, I entered upon my duties three years back, the result of my labours I now beg to lay before your readers. I represented the owners of gravel claims, and also of gold, silver, and cinnabar mines, all more or less developed. I aimed at doing business honestly, or not at all; and, acting on that principle, I named such a price as the property was worth in the streets of San Francisco. I soon discovered that the usages of London was to buy a property (say) for 20,000*l.*, and sell it to the public for 100,000*l.* To this unreasonable profit I objected, and then I was told, "It is no business of yours what we do with the property after we buy it." I replied, "That is very true, but you require me to sign a fictitious deed of sale, to which I object." I then found the difficulty of selling mines unless I surrendered myself to a syndicate, bound to sign whatever documents were placed before me; against such a system my own nature rebelled, but even were I weak enough to comply my principals in California would object.

Finding the difficulty of selling an estate in mines in the same frank and open manner in which I should sell an estate in land, I attempted to introduce a new system, which was this:—I will guarantee to the purchaser a clear title to the property, on condition that he will work the mine with his own brains, his own money, his own staff, and pay the owner such a share of the profits as may be agreed upon; in the meantime, the only cash the purchaser has to advance is the payment for machinery and working expenses. With this plan full in my head, I went forth, confidently expecting immediate success, believing it was the best mode for protecting shareholders. I first addressed myself to stockbrokers. They admitted the soundness of my plan, but declined to co-operate, for the commission upon so small an affair would not be worth their attention. Next I applied to capitalists, all of whom admitted the soundness of my project, but declined to assist me, because the sum necessary to pay the working expenses of a mine was too small to deserve their attention. Then I applied to gentlemen known as promoters, by whom I was always well received. Our interviews usually ended in this manner—"Your plan is good, and suits the shareholders, but it does not suit us; we want an immediate reward; dividends we do not care about." Finally, I addressed myself to solicitors familar with the business. After discussing my mode of procedure they declined to co-operate, and, I must say, on good and sufficient grounds, alleging that "Good fees can only be obtained from large capital; you have no capital from which we could expect to be paid for our time and influence, therefore we decline."

Now, Mr. Editor, I have given you the experience I have gained during three years of patient perseverance. My sole object for doing so is to assist in the discussion of the subject, for I am sure were my system adopted it would prove highly remunerative to whoever would assist in its initiation. "Outsider" urges "those interested in the subject to step forward and render all the aid in their power to establish foreign mines upon a fair and satisfactory footing." In response to that invitation I hereby contribute my share.

All admit a change is necessary. My system I believe is the only safe one, but to give it life is the difficulty. It will not find favour with stockbrokers, capitalists, promoters, or solicitors, for reasons already explained. These gentlemen cannot be expected to give attention to small matters, while the safety of my system is to be found in the insignificant sum I want. A mine perhaps intrinsically worth from 50,000*l.* to 70,000*l.* can be handled for 5000*l.* or 10,000*l.* The mode I advocate renders peculation impossible; it protects the adventure from all risks, except such as are inseparable from all mining operations. But what is the use of this beautiful, because safe, theory unless a dozen of the right sort of men are found to give it a fair trial?

I apologise for so long a letter, which I could not very well abridge, and solicit its appearance in your next issue. WM. MACCANN.

Chapel Walks, Liverpool, Oct. 14.

THE RICHMOND MINE.

SIR,—I think the shareholders have a fair ground of complaint against the directors for the startling and contradictory telegrams from their manager which they publish every week in the newspapers. To go back no further than last week to show our grounds of complaint, Mr. Rickard telegraphed, and the directors published, "Mine looking splendid, better returns forthwith, week's run $30,000, with two furnaces;" consequently on this startling announcement the shares jumped up 1*l.* 12s. 6d., or about 25 per cent., and we confidently counted on a most satisfactory report this week, barring accidents. Well, no accidents have occurred, the telegram has come, and the directors announce only $43,000 as the week's run, with three furnaces, which is less in proportion than last week. Not a word is said about the "splendid" appearance of the mine, and the "better returns forthwith" resolve themselves into worse returns immediately—that is, $43,000 with three furnaces, as against $30,000 with two furnaces. The whole thing really appears as if it was worked in the interest of the operators on the Stock Exchange, who alone benefit by these contradictory reports, and consequent rise and fall in the value of the shares. I say "looks like it," because I do not believe it is done with any such purpose by the directors, but they really ought to be more careful of what they publish.

Again, we have another ground of complaint in being kept so long in the dark as to how our property was worked in the quarter ending May 31, on which we ought to have had a dividend in September last. We were told in the circular announcing the postponement that everything was all right, and that the delay was only temporary, consequent on the money panic in San Francisco. Well, the panic is over long ago; money is again cheap and plentiful in San Francisco. Why, then, do we not get some announcement about our postponed dividend? This delay and silence is all worked by the operators on the Stock Exchange to frighten weak holders, and although the directors may know the mine is all right, the shareholders and the public are all in the dark, and, consequently, the shares have fallen again this week, and will go on falling until a dividend is announced. Of course, another firework telegram from Nevada will galvanise them up, but I protest in my own name, and that of many other shareholders, against our property being made the sport and plaything of the Stock Exchange.

London, Nov. 18. A SHAREHOLDER.

RICHMOND MINING COMPANY.

SIR,—Taking the present market prices of each 5*l.* share in the Richmond Consolidated Mining Company (which consists of 54,000 shares) at 8*l.*, the market value of the mine would be 432,000*l.* Since the present company was formed, in 1871, about a million pounds sterling have been extracted from it, wherewith dividends amounting to 154,000*l.*, or 2*l.* 14s. per share, have been paid. So without taking into account the possible discovery of a bonanza equal in richness in stock to the Comstock lode, which together with that in the Ruby Hill (in which the Richmond is located) belong to the Miocene period; but giving the mine credit simply for similar prosperity in the future to that which it has had during the four years of its existence under the present company, it will take upwards of twelve years, and the extraction of ore to the value of upwards of three millions and a half pounds sterling, before a shareholder can get out of the mine the 8*l.* he would have to pay for a share in the market. This is without calculating interest on the 8*l.* Reckoning compound interest on the 8*l.* during these 12 years at 5 per cent., it would take another five years to wipe it off, and the extraction of upwards of another million pounds sterling of ore from the mine. So that after the expiration of 17 years, and the extraction of ore from the mine to the value of about four million and a half pounds sterling, we may reckon on enjoying dividends free from any deductions. With these data it is capable for everyone, unassisted by bulls or bears, to calculate the value of a share in the Richmond Mine.

Nov. 19. "ONE WHO IS NOT BEHIND THE SCENES."

EMMA MINE—FUTURE POLICY.

SIR,—Can your announcement be true—that upon the condition the legal proceedings instituted in America shall be carried to a judicial issue the vendor is prepared to advance 40,000*l.* to further explore the mine? If so, the position of the new board is rendered a much more difficult one than had such an uncompromising and unequivocal offer not been made. Legal outlay was magnanimously offered by the present Chairman to be defrayed out of his own private purse; the unexpended capital to be expended upon its legitimate object—the development of the mine. The Chairman, seemingly, has faith in the eventual value of the mine. If your announcement be true, the mine can be fully developed by funds the vendor will supply, but the funds to continue the proceedings against the vendor must be elsewhere found. The fullest opportunity is thus afforded the Chairman to magnify his magnanimity; let him extend his ardour hence; the cost would be no greater, and whatever the result, 40,000*l.*, or more, would be forthcoming to prove the correctness, or otherwise, of Prof. Silliman's theory—that the Emma is not a float deposit, but a true fissure yielding increasing wealth in depth.

The report of Mr. Attwood is discouraging enough; it is, however, by no means as conclusive. Without wishing to injure Mr. Attwood's professional reputation, one is prompted to imagine where this expert's experience has been gained. Peradventure, Treasure Hill, in Nevada, might be pointed at, when Mr. Attwood was reporting upon Eberhardt. Some of us have not forgotten that remarkable report of his upon South Aurora. "To err is human—forgive divine."

True, Mr. Henry Sewell and Mr. Attwood are not cousins—that has been shown by the communications in your Journal. Mr. Sewell steadfastly and publicly avows that in depth Emma *will* regain her fair reputation. Mr. Sewell has staked his own capital in support of his opinion, and more, induced personal friends to follow his example. Who shall say that Mr. Sewell is wrong and Mr. Attwood right? Will Mr. Attwood himself publicly assert that by a judicious expenditure of capital important and valuable discoveries will not be made, fulfilling the early prophetic assertion that "Emma can always be made to be the queen of Emma Hill?" Such was clearly the opinion of Prof. Silliman, and such is still maintained by others possibly less scientific but more practical. Mr. Spratt, Chairman of the South Aurora Company, informs the shareholders, I find, that he purchased a large interest upon the opinion of Mr. Sewell. Possibly, Mr. Spratt can throw some light upon this vexed question, recollecting Mr. Attwood's report upon South Aurora.

A casual observer would be led to the conclusion that the step taken by the shareholders last week had been prudent and politic. Is it so? The late Chairman's warning has doubtless found echo among many passive shareholders—that had the vendor and others associated with the introduction of the company paid an advocate to defeat the legitimate object in view, the end would have been less effectually answered than by the litigious and obstructive action of the past few months! This *ex cathedra* statement, pregnant with weighty considerations, embues dispassionate minds with an irresistible conviction of difficulty portended in the future.

Stock Exchange, Nov. 17. MEMBER.

EBERHARDT v. RICHMOND—MARKET ANOMALY.

SIR,—Hudibras has it, "The value of a thing is what it will bring." This is so with market mines; the exercise of common sense is, notwithstanding, the safer monitor. Why, in common sense, should Eberhardt shares be selling in the market for something like 200,000*l.* and Richmond at nearly 500,000*l.*? Why Eberhardt at 2*l.* discount and Richmond at a premium of 3*l.*? Not because the profits are larger, still less on account of the relative position and prospects. The changing formation at Richmond may or may not in after development be a fortunate circumstance for its shareholders—that is veiled in the misty future. Eberhardt, on the other hand, is already in a settled formation—its vein yields a milling ore. Two significant features which cannot be over-valued in estimating the soundness and permanence of such mines. Further, the cost of milling *is* sensibly less, profit immeasurably greater, and regularity and certainty of production incomparably superior. Why, then, should Eberhardt shares be realising an aggregate sum one-half less than Richmond? A divisible profit of 27,000*l.* pays upon Richmond shares a 10s. dividend; 23,500*l.* is only required to pay a dividend of 1*l.* per share on Eberhardt. Considerations like these merit attention in these days of wild speculation. Singularly true is it that those most deeply concerned are those who mostly shut their eyes to convincing facts, and rush insanely on in any mania that may perchance present itself, until excessive credulity usurps unsound speculation—the issue, disappointment, loss, and the usual abuse of mining. Legitimately, mining is completely irresponsible; more properly is the absence of ordinary prudence the main and only cause of the mischief. Strikingly would this seem to be the case with the two mines at this "caption." Some more able than your correspondent may supply the reason of such an apparently irreconcileable discrepancy.—*Stock Exchange, Nov.* 17. MEMBER.

MINING IN NEW SOUTH WALES.

SIR,—As English capital is now being invested in our Newcastle coal mines, the following information may be of some interest to your readers, as New South Wales must be the colliery of Australia, and the certainty of having sufficient appliances to meet the rapidly-growing trade is of vital importance to the owners of coal properties. Our total output for the last 12 months was about 1,200,000 tons, but we shall now soon be able to increase it to 3,000,000 tons:—

SHIPMENT OF COAL AT NEWCASTLE.—We learn that some important improvements are now being effected at the port of Newcastle in connection with the Department of the Engineer-in-Chief for Harbours and Rivers. The works in progress comprise the erection of a 15-ton steam crane on the wharf to replace the old cranes known as Nos. 3 and 4, so as to give a wider space between the cranes for long vessels without reducing the output. There are also being erected four 15-ton hydraulic cranes on the new wharfs along Bullock Island Dyke, each of which cranes will be capable of shipping 1000 tons of coal per day. For working these cranes a large building is now being erected to contain the pumping-engine, and accumulators to supply the necessary pressure. The building will be large enough to hold engines necessary to work from 16 to 20 cranes, besides ballast hoists if necessary, so that by this arrangement it becomes practicable to erect any new cranes which may be required by the increase of the coal trade at a few months' notice. The total capability of the appliances for the shipment of coal may be summarised as follows:—Eight Government cranes, capable of shipping 6800 tons per day, and four Government shoots capable of shipping 2400 tons per day. As a matter of fact, however, the cranes are not kept fully employed. Many of the vessels which go to Newcastle for coal are of a very large tonnage, and but ill adapted for use as colliers. The trimming, therefore, occupies much more time, and as much as 25 per cent. must be deducted from the total capability of the cranes, &c., and this brings down the actual shipment to 6900 tons per day, as against 9200 tons—the total capability of the appliances if they could be worked under favourable circumstances. The five shoots of the A. A. Company are equal to the shipment of 1200 tons, and the two shoots of the Waratah Company to 1000 tons; and when to these are added the appliances now in course of erection we shall have facilities at Newcastle for the shipment of 12,300 tons per day.

There have been discoveries lately made of kerosene shale, about 100 miles beyond the limit of former known deposits, and a seam also lately opened on the northern line of railway promises to be of great future value, as there is a growing demand for good shale for gas-making purposes, not only in our own colonies, but also in San Francisco and the East.

Our gold mines are working steadily, and the Adelong reefs are specially proving themselves as well defined, and carrying good stone at greater depths than any other mines have yet been worked in the colony. Paxton Holman's and Star of Peace, at Hawkins's Hill, are raising the usual 2-oz. stone in large quantities, but no rich finds have lately been made; such as last year gave nearly a ton of smelted gold for one washing up, but as Krohman's and Halterman's have some thousands of reserve capital, and are still steadily sinking and cross-cutting, any day may bring their shareholders good news again.

Hydraulic mining has never yet been tried by us on a scale worth speaking of, but whenever it is some of our "cement" hills to the south, and the table lands near Arabian, will rival any of the now celebrated San Franciscan "gold gravel" mines in their yields.

Newman's underground "race," enabling his wet alluvial ground to be worked without steam pumps, is just completed sufficiently to prove that stuff, only giving 10 or 12 grs. of gold per load will pay handsomely, and his success in this (to us) novel way of working poor ground will revolutionise our system of alluvial working in cases where an outfall can be got within any reasonable distance of the wash dirt.

Copper mining is still progressing, principally on the tribute system, as the recent extension of our railway into our mineral districts, and the opening up of coal on the line, enable poor ores to be cheaply carried to the Eskbank furnaces. There is a growing disposition here to try the American wet process (Hunt and Douglas's), as it is said to be much cheaper, and more exact in saving the gold and silver (which exist in all our copper here). I believe an English company (Armstrong's) is likely to be the first to adopt it, and as it is the nearest copper mine to Sydney, and only one mile from the line of rail, the cheapness of carriage for the iron and salt used in the process will give it an extra chance of success as compared with all the other ones further afield. At the Goodrich, where we crush all our poorer ores and concentrate the copper and pyrites, we find 1½ dwt. gold per ton pays expenses of treatment, and if the Armstrong gossan lode (as per manager's report, extracted from to-day's paper) gives 4 dwts. they ought to do still better than the Goodrich.

The manager reports: We have cut through the grey ore lode in the stoping of the drive of No. 4 shaft on the southern boundary of the mine, and are now working on the black oxide, which I have no doubt is the same we came across in the bottom of the shaft, but of richer quality, of about 30 per cent.; it is now getting intermixed with pyrites, and thickening as we go down. The lode is here about 3 ft. thick, but I find it is twisting to the north as we proceed downwards and into the hill. We have got out some rich blue and green carbonates within 2 ft. from the surface in the centre and northern extreme of the mine, bearing throughout a north by west direction with the lode that we are now at work on. The same character of ore has been traced for over two miles into private property adjoining. I have tested several samples from the gossan lode (40 ft. thick) from surface to 60 ft. deep, and find that they all give a good show, averaging about 4 dwts. of gold and 8 ozs. of silver to the ton.

As our railway progresses a cheaper carriage alone will make many of our mines dividend-paying which are now only self-supporting, and also enable the Sydney directors to give that personal supervision the want of which hitherto has led to nine-tenths of the blundering and plundering which has almost made the term mining a synonym for folly or fraud. R. ADAMS.

Sydney, Sept. 24.

LEAD MINING IN WALES—THE MOLD DISTRICT.

SIR,—I have been looking in your valuable Journal the last month expecting to find some information respecting the lead ore met with at the Fron Fownog Mine, near Mold. I am glad to hear after a long struggle the company have been successful in reaching the deposits of lead ore so much talked of before the company commenced operations. I was informed by a friend who had visited the mine lately that they had drawn some splendid lead ore to surface; this no doubt will stimulate the other mining companies in the district, which is rich in mineral wealth. I was pleased also to hear the Pant-y-Mwyn Mine Company are putting up a small engine on the Medlyn portion of their sett, which will be started in about six weeks. As there is but a small quantity of water in this part of the property, they will be able to go down 50 or 60 yards below the adit level, which, when done, and levels driven east and west on the

main lode, there is no fear but profitable returns will be the result. I know this district, and from the sales of lead ore during the last workings, principally from the middle lode (very little having been done in the other lodes in the sett); taking into consideration the size of the lodes and length of bearing ground, this is one of the best mining properties in North Wales. From what I have heard, efforts are now being made to work the whole run of mines comprised in the Pant-y-Mwyn grant, being nearly 2 miles long, and 1 mile wide. The party who have taken the matter in hand are very sanguine of success. Should this be the case, and the water once more forked out of the deepest part (which is comparatively shallow, being a little over 50 fms. below the day level), there will be a stir in the Mold district.

I was glad to hear from another friend that in the ground adjoining Pant-y-Mwyn to the north they have struck a new vein (in driving a day level) with a good rib of lead ore in it. I say push on; and in a district traversed by so many lead veins it is hardly possible to fail in finding profitable ground by selecting the largest veins and most likely ground to work on. While there has been large sums of money spent in foreign mines our home mines seem to be neglected, in some cases it might be from the low price of copper and tin, but for some years past we have had no reason to find fault with the price of lead. I hope capitalists will turn their attention to lead mining in Wales and other districts that can be named that are rich in that metal, and no doubt profitable mines will be found. I see by the Journal that Mr. J. H. Murchison has taken the matter up, and I trust his book, when published, will answer the purpose intended by the author. I shall write again shortly, but for the present I conclude with, Success to mining. J. JONES.

Shrewsbury, Nov. 17.

GOLD IN WALES—No. VIII.

THE DOLGELLEY DISTRICT.

VIGRA SECTION.—The Vigra and Clogau Mines have been so long taken in connection that I hardly think it worth while to keep them apart in their history. Besides, the inferior metals, and the probability of their being profitably auriferous, lay claim now to some consideration, and these mines jointly, apparently present features of encouragement in that direction. I shall, however, first of all observe that the first license to work for gold and silver on Crown lands in Wales was granted to the late Mr. James Harvey and myself for 20½ years, from Oct. 10, 1853, of the North Dolfrwynog Mine ("130 Merioneth" in the Cwmheisian district), at a royalty of 1-12th, and a reserved rent of 30*l.* a year. The second gold license was granted to Messrs. Bailey Sherwood, Newman Sherwood, Thomas Rolinson, and Richard Kirkman Lane, of 200 acres, part of the Vigra mountain, and 198 acres, part of Clogau mountain, on the same terms as above. The third gold license was granted to the same parties, on the same terms, of 166 and 180 acres, both being portions of the Clogau mountain. The fourth gold license was granted to Sir Augustus F. G. D. Webster and the Hon. F. Walpole of 172 acres (West Garn, in the Clogau section). The royalty in this case was 1-10th. The licencees in the first three cases held previously-dated-leases from the Crown, at the same royalty and minimum rent of 30*l.*, to work copper, lead, calamine, iron, tin, &c., "*and all other minerals and metals whatsoever.*"

In my simplicity I took the above *italicised* quotation to mean what I thought it exactly expressed, and that I might get on the terms of the lease any gold and silver I might be lucky enough to find on the lands comprised therein. I thought gold and silver were *metals*, and that auriferous and argentiferous galena and blende were *minerals*. I am of the same opinion still; not so, however, thought the law officers of the Crown. It was not intended, they said, to be taken literally, for "all mines wherein there is gold or silver are royal mines, and, therefore, gold and silver could not be included in the ordinary lease." I was also told that a separate gold license would be granted to a third party if I did not myself take it.

My legal adviser dug up the fusty old black-letter Act of Parliament (A.D. 1404), entitled "It shall be felony to use the craft of multiplication of gold and silver," and hinted something darkly about the dungeons of the Tower of London, and that robbery from a royal mine might end in an uncomfortable lodgment therein as a royal felon; and, further, that if I contested the point at law the Crown never paid expenses when it lost a case, &c. Therefore, after an elaborate opinion of his, on appropriate foolscap, I yielded against my conviction, and consequently put my foot into an uneasy boot.

I may say here that gold and silver have been *excepted* from ordinary Crown mining leases ever since, and that severe terms are now insisted on in cases of successful explorations for gold on Crown lands. I cannot say what the exact terms are, not being interested or involved at all in that part of the gold question; but that happens to be information easily obtained at head-quarters by anybody who may desire it.

I regret that somebody, who ought from his social standing to have known better, purloined a valuable note-book of particulars relating to the Vigra and Clogau Mines prior to 1845. I have, however, sufficient recollection of the memoranda to be able to state that a large quantity of copper ore was raised and sold from each of these mines, and of good quality, between the years 1825 and 1845; and I am bound also in fairness to state that I have an impression that "pockety" was a technical expression used to indicate an occasional mode of its occurrence.

The VIGRA and CLOGAU Mines are full of mineralogical interest, and I propose to treat of them at greater length than I at first intended, because the details will more or less apply to a number of mines in their vicinity which I intend to mention. The following are brief extracts from my own note-books of 1858-59:—

CLOGAU MINE, SOUTH GRANT.—Several lodes, bearing generally east and west. The Cambrian gold lode appears to be one of them. A little work done on one lode, composed of quartz, gossan, copper pyrites, blende, and galena, with traces of gold in the ores on assay.

MIDDLE GRANT.—Several lodes, containing copper pyrites, blende, &c., run nearly parallel. Adit taken up on one lode about 9 fms. perpendicular from top of mountain, and driven 20 fms. east on course of lode. Adit continued 17 fms. east of whim-shaft, on a lode 3 to 4 ft. wide. Here the lode to the north has been cut, underlying north at an angle less than the first lode—likely to intersect below second lode, which is 3 ft. wide, and like the first in character. Lodes will probably form a junction of value. Stopes and bottoms below this level said to give on an average 3½ tons of copper ore to the fathom, worth about 30*l.* Third lode 15 fms. further north, 4 feet wide, underlying north; similar character as last. Capt. Parry says 25 tons of ore can be raised per month from this lode.

NORTH GRANT.—Several very promising lodes in this sett. St. David's, or "gold lode," the most remarkable; its "poor copper ore" happening to be, some of it, gold (already described).

VIGRA MINE.—In this sett five lodes opened on; four of them nearly parallel in east and west course. Southern lode, 2 to 3 ft. wide, has yielded large quantities of copper ore, quartz, yellow copper ore, and mundic. Three lodes in centre of sett, not far apart. The northern, or "Greenland lode," 3 to 4 ft. wide, quartz, gossan, yellow copper ore, and mundic, underlying moderately south; specks of gold occasionally. Lode wrought near top of mountain, and driven on 8 or 10 fms., in two places lower down. Second, or middle of the three, 9 fms. further south, 2 ft. wide, going down perpendicularly; very like the north lode in character. Fifth lode, 18 fms. further south, underlies north, lot of work done here, and lots of ore taken away—pockets probably; lode of same character as other two lodes. Engine-shaft sunk 28 fms. on this lode, and No. 2 level driven on its course. These three lodes probably unite at 30 fms. below present shafts—may be very productive. The fifth lode nearly north and south; a few unimportant trials on it.

Assays by Johnson and Son, and Mitchell and Field, for Mr. Harvey, show, from samples of copper ore, 5½, 12½, 14¾, 17½, and 19 per cent. of pure copper. Lead ore, 41½ per cent. pure lead, and 31 ozs. 7 dwts. silver to the ton; and 45 per cent. pure lead, 13 ozs. 15 dwts. 15 grs. silver to the ton.

Large lumps of beautiful variegated copper ore (erubescite); yellow copper ore, occasionally associated with marcasite, galena, and blende apparently not abundant. Found myself, on Vigra, one specimen of yellow copper containing visible gold (Qy.—a rarity?).

Memorandum.—The late company obtained, at times, some considerable parcels of copper ore, but true allegiance was given only to the royal metal—gold.

Capt. Matthew Francis (1846) writes—

"It appears to me that the simple and proper method to develope the resources of this ground (Vigra and Clogau) is to take two large adits, or rather horse levels, from near the margin of the Mawddach into the heart of the mineral ground. In Clogau this will dry a section of 1500 ft. perpendicular, and Vigra about 900 ft. Some 70 or 80 fms. to the south of the Clogau main lode a large vein is opened on what is called the south grant, and from the workings some fine gossan, spar, and blende have been raised, which most likely will lead to copper in depth; if so, it will be intersected by the proposed level. About 250 fms. to the north of the Clogau Mine a very large lode is seen, bearing about 20° to the north of east, and running into the Vigra Mine, forming a junction with the Vigra lode there, and it is not unreasonable to suppose it to be the cause of the formation of the Vigra ore ground. In this country—*i.e.*, the Vigra and Clogau—the copper comes to the surface, yet I do not see any reason from this circumstance, as I believe veins of metal are all filled from below to doubt that they will be better filled in depth; and from these reasons I conclude that there must naturally be an immense stock of copper in the Clogau and Vigra lodes at a depth beyond the present workings, and which will be reached and made available for future working by the plan I have suggested."

Memorandum.—Ore crushed and amalgamated in 1861, 456 tons 15 cwts. 3 qrs.; yield of gold, 2886 ozs. 3 dwts., or 2784 standard ounces—23*l.* 5s., value of the ton.

Memorandum, Feb. 9, 1863.—4566 ozs. 2 dwts. 12 grs. of gold, from 13 tons 16 cwts. 1 qr. 12 lbs. of rich ore.

Memorandum, Feb. 17, 1864.—Return of gold for the week from St. David's lode, 297 ozs., from 11 cwts. of quartz.

Capt. J. Remfry wrote (February, 1864)—

"The underground deep workings never presented a more favourable appearance. In the upper adit, St. David's lode, the lode is from 2¼ ft. to 3 ft. wide, composed of very favourable looking quartz, intermixed with copper and iron pyrites.—Stope between Top and Lower Adit: We have found specks of visible gold, but nothing of any importance; here the lode is well defined, having a good hanging footwall from 4 to 6 ft. wide; in the western side the lode is composed of white quartz containing a little copper. In the east side the quartz is of a greyish colour, more favourable for gold, and highly impregnated with copper.—Lower Adit, Eastern Driving: Lode 18 in. to 2½ ft. wide, hard and compact throughout. The lode has always been very auriferous, and samples which have occasionally been tried have always shown a fair amount of gold.—Western Level: About a cubic fathom has been taken away, which yielded 784 ozs. of gold. The lode is still of the same richness, and there is every prospect of its continuing so.—Single Tree Cross-Cut: Stopped on account of bad ventilation.—Jenny's Adit: Ground hard for driving, costs 5*l.* 15s. per fathom. Eliza's adit driving only.—Cottage Adit: Lode developed 23½ fms., in an easterly direction. In October a deeper adit was commenced, which will bring in a depth of 8 fms. under the top one; ground hard for driving."

Memorandum, Sept. 10, 1864.—Received from the Vigra and Clogau Mines to this date, 10,778 ozs. of gold, from 2383 tons 10 cwts. 3 qrs. 5 lbs. of quartz, &c.—J. LOCKWOOD, Secretary.

Mr. Arthur Dean (November, 1864) wrote—

"During several months past the discoveries of rich concentrations of auriferous mineral have not been important; but, on the other hand, the existence of immense quantities of finer but profitable ores has been satisfactorily determined in nearly all the lodes traversing the company's properties. So long as the rich branches only are wrought the fluctuations in the returns must be very great; but with adequate machinery to reduce the poorer gold ores the returns may be kept up with great steadiness, and the rich bunches will then fall in as bonifications. In my opinion, the company possesses such an amount of good paying stamp ores that if not another rich bunch of gold is met with the mines may still be made to yield a very large profit. In the St. David's lode the composition is such as is usually found in the mine to accompany rich deposits of gold, and we may hope soon to learn that the looked-for gold has been met with. In all cases the lode has been proved to be sufficiently auriferous to pay well for the working. The West St. David's lode, opened on for 80 fms., is everywhere auriferous, yielding upon trials 6 dwts. to ¾ oz. per ton. It is intersected by a powerful cross-course, which leaves (*sic*) it about 90 fms. south-east; but beyond this the lode is very regular and auriferous. An open stope 2½ fms. high is being carried forward in this lode, and yields a large quantity of auriferous ore, with copper pyrites thickly disseminated through the mass. This lode will turn out a large quantity of valuable stamp ores, and gives promise of also yielding rich bunches of gold.

Another source of supply of auriferous ores will be the old Clogau copper lode. It runs through the company's lands about ¾ of a mile, and rises to the height of 650 ft. above the stamps at Vigra. In the upper part of the mountain the lode forms part of an immense mineral channel, about 120 ft., where the mineral may be literally quarried down. Throughout the mass gold is disseminated in paying quantities; various trials have yielded from ½ to 1 oz. gold per ton of mineral. The mine was formerly wrought for copper only. A trial of the ores raised many years ago, from the bottom of the mine, yielded 1 oz. gold to the ton. From the old Clogau lode an enormous amount of auriferous mineral for stamping may be obtained, and there is little doubt of gold holding down, as the richest mineral found therein came from the bottom of the mine, 30 fms. from surface. A considerable quantity of copper ore will be obtained with the gold. All the operations to facilitate the working of the auriferous ore *en masse* are being pushed on with all possible vigour, and from the commencement of the ensuing year regular and large returns may be expected. The long drought of the summer has continued almost to the present time, and by stopping the machinery has prevented the realisation of a large amount of gold which would otherwise have been returned. In consequence of the discoveries lately made, the future prosperity of the enterprise is, in my opinion, much more firmly established now than at any previous period."

Thus wrote Mr. Dean as consulting engineer to the directors.

Memorandum, April 24, 1865.—Received from the Vigra and Clogau Mines to this date, 11,479 ozs. of gold, from 4008 tons of quartz.—J. LOCKWOOD, Secretary.

Memorandum, Nov. 6, 1875.—One of the conditions upon which these mines are at present held from the Crown, is that the Vigra (Jenny's) adit (now driven 2?2 yards) shall be completed before Oct. 10, 1877. The object of this adit is to cut the great Vigra copper lode in depth, and 75 or 100 fms. more will cut under the old workings. This will be accomplished by the end of next May, Capt. Milford thinks, as the Burleigh rock drill up to the present time is very successful.

Nov. 15. T. A. READWIN.

[*Vigra Section to be continued.*]

Postscript.—Your correspondent "J. B.," and all persons interested in the question of gold in Wales, *per se*, or otherwise, will come to no harm if they wait patiently the issues of the present workings at Clogau; and until the conclusion of these detailed articles of mine upon the subject. I shall get as far as the Cwmheisian section before very long, leisure permitting, and will treat it fairly. The success or failure at Clogau, however, ought to haxe very little to do with the mines which "J. B." mentions, as they, and others, possess merits of their own, totally different from the mines of the Vigra and Clogau Section. T. A. R.

BORING MACHINERY.

SIR,—The Cornish may well be called a peculiar people—sturdy, opinionated, and independent—they have very curious modes of doing business. Not the least remarkable thing in connection with mining is the fact that when coal is high they talk of drains, when floods come they say something must be done; they have ideas as to what is proper, but very seldom do their ideas ever assume a practical shape. Three years ago, during the grand, though disastrous, mining *furore*, when the working miners had all in their own way—when they "waxed fat, and kicked"—those who possessed mining property turned their attention to boring machinery as the means to be adopted for cheapening the cost of driving levels and sinking shafts. Now, when everything is as dark and gloomy as it can be people turn to machinery as the means of rescue. Wiseacres might say—Would it not have been better to have made trials in more prosperous times? but we hardly believe in lamenting past misfortunes. Nowadays the grand rallying cry is—"Forward, and he who looks back is lost." Cornish mining holds an exceptional place in relation to the boring machine. The high price of coal and the exceptionally low price of labour renders successful competition a matter of great difficulty, and the extremely precarious nature of the mining operations renders it almost impossible for contractors to have fair play. Had these circumstances not existed we might have seen long contracts set to the different owners of machines to drive certain mines, but the inducements held out have never been sufficient to warrant a general and decisive trial.

Some eight months ago a couple of boring-machines were set to work at Wheal Agar under the fostering regard of Mr. Waddington. Accident has followed accident, things somehow had a knack of going wrong, and the experiment has not been very successful. At about the same time mention was made of a machine devised by two Cornishmen, which was in very successful operation. The machine was examined by Capt. Thomas and another gentleman, and was pronounced to be a very simple and efficient borer. It was determined to make a trial at Dolcoath. The old Dœring pipes were put in trim, the machine purchased, and set to work at surface. It did its work admirably. There is no complication, no continual derangement. All the parts are compact, solid, strong, yet light. Standing on an ordinary tripod it gives the necessary blows, and bores 4 in. of granite per minute with ease. It does not fitcher if worked properly, and can be made to take up a new position in about one minute. For driving a wrought-iron tube with a screw-nut fitted in one end is used, placed vertically or horizontally across the level, and with the aid of a clamp a joint of the necessary rigidity is formed. When it is fixed horizontally a hole may be bored at any angle, and two men can easily fix it on this support in five minutes. Of course the pressure of air required is governed entirely by the resistance to be overcome. Such is the machine which is exciting much curiosity here. It is easily worked, easily fixed, does not get out of order—surely this is what is wanted. The future of mining depends very much upon the success or non-success of this borer; the agents of Dolcoath believe it will be successful. It is evident that the introduction of a machine destined to revolutionise the ordinary methods of mining must meet with much opposition. Boring machinery and dynamite go together, and until the miner gets to understand the best arrangement of holes there will be very much uphill work. It is not easy to overturn the practice of centuries.

For many years the Cornish miner has believed in his own brawny arm, and he will not easily give in before this toy—this machine. In introducing the borer many drawbacks are met with which seem trifling, but they detract from the apparent value of the machine. A pipe bursts, or a very little accident often causes the cynical onlookers to say "Just what we expected," but now we hope to see these sceptics for ever silenced, and we want to see the pioneers of improvement get their due. We say, "Success to the Barrow borer." By the way, can anybody give any information as to the borers that were to be set at work on the Hownans, at Balmynheer Mine. Were they ever set a going?—*Nov.* 15. N. B.

THE DOWSING ROD.

SIR,—I have been unable to follow this subject as regularly as I could wish, and have probably missed some interesting letters which have appeared in the Journal. In the number for Oct. 30 I notice a letter from "Scrutator" still regretting the imaginary want of courtesy shown to his relatives and friends, with a short dissertation on "Uncommon Sense." Also one from Capt. Francis, in which he sets forth a new method for comprehending badly expressed English—that is, to turn it into Greek. He does not say whether by mesmeric influence, or the aid of a Planchette, but goes on to give us the result of a dowsing experiment at Frongoch. And in the Journal of Nov. 6 "Fair-Play" follows in the same strain with "Scrutator," and then expresses himself as highly gratified at the manner in which the supporters of the theory have come forward. But I am at a loss to see in what way they have thrown any light on the subject more than we had 30 years since, as nothing has been clearly authenticated which can be considered a success in a commercial point of view.

One writer informs us that some person found a penny, and another found 2s. 7d., we have also the statement of a gentleman who, while visiting a friend, found a large number, I think, if I remember rightly, about 150 lodes in a few hours, but as we are told nothing of their value, we may infer they were not worth so much as the other men found under the hats. Several other lodes have been spoken of, but we know nothing of what they contain. Mr. Skewis traced the history of one dowsing experiment, in which a man found a set of horse-shoes, and Capt. Francis's friend expressed a belief that the devil was in the rod, and for all these discoveries we are told the believers in mesmerism and dowsing are truly thankful. But this method of claiming for themselves the best of an argument reminds me of a couple of miners who were drilling a hole, the striker chanced to miss the drill, his partner cried out, "Hallo comrade, how dost tha miss the borrer like that?" The reply was, "I didn't miss'n nuther, how could I miss'n when I didn't hit'n."

In a former letter I stated that dreamers nor dowsers could tell us where the ore is deposited in the veins, and this is the case, for let a man be ever so talented he can only judge of its presence, or value, by ocular demonstration. A few months since I made a survey of a level in Denbighshire, driven in a sort of zigzag fashion, about 50 fms. into the mountain, by the direction of a visionary sort of an individual, who regularly dreamed the course they must keep. Poor fellow, his visions appear to have been considerably disturbed, and he appears to have kept constantly turning in them, for I could scarcely get a sight of more than from 12 to 18 ft. on the same bearing anywhere in the level; but he is gone to his long rest now, and the ore has not been discovered.

About four years since a well-educated, intelligent man called on me at Strata Florida, and told me his rest was broken very much for some time by a discovery with the dowsing rod, which he thought gave unmistakeable signs of a body of metal being in the vicinity, but he had taken many a weary journey, and toiled hard, without being able to discover the treasure. After some time he prevailed on me to accompany him. We started the following morning, across mountains and peat bogs, a distance of about nine miles; the aspect was a bleak one, and we could not perceive a living creature near us, except two crows hovering about, and probably they would not have been there but for the carcase of a dead sheep that was near. The rock was visible almost everywhere, showing a sort of clay-slate, dipping vertically, and showing masses of quartz, but no sign of a mineralised vein. After several attempts the rod made a graceful bow, in the hands of my friend, in the direction of a projecting quartz rock, probably caused by the nervous twitching of the muscles of his arms in his excitement; but this was the extent of our discovery. The next day he accompanied me to South Lisburne and Esgair Mwyn Mines, but though we were passing over some of the master veins of the county, and walked over known courses of ore, the rod gave no sign, and in language somewhat similar to the Frongoch dowser, he exclaimed, "Either the devil is in the rod or in me, and I will have no more long journeys or broken rest about dowsing."

In reverting to the experiments said to have been made on the Frongoch vein, I might state that although I am afraid to say how many thousands have been spent to the east of this mine, in trials which led to no good result, there has only been one discovery worthy of note in this direction, which was made by Capt. Michell, of Cwmystwith, and myself, at Tygwyn, simply by the exercise of a little common-sense in laying down the average bearings of the lode, and the deviations caused by the rise and fall of the ground, and by the aid of a pick and shovel, in a couple of days, we opened a nice course of lead ore, which still continues, and promises with development to equal the Frongoch Mine. This mine is known to your readers as the De Broke Mine. And here I might ask Capt. Francis, and others, the question, if there is any efficacy in the dowsing rod, why was so much money spent and talent wasted, and this course of ore, reaching up to the grass roots, overlooked? Could it be that they had reached that advanced state of knowledge, or sagacity, which "Scrutator" calls "Uncommon Sense?"

Snowdon, Llanberis, Nov. 16. CHAS. KNEEBONE.

COPPER MINING IN CORNWALL.

SIR,—I am glad to see mining men turning their attention more spiritedly to this kind of undertaking; it reminds me of what the copper ore sales were a few years since, and the hundreds of thousands of pounds paid in dividends by a large number of our copper mines on a comparatively small outlay. I could name several mines which, with the expenditure of two or three thousand pounds (and some less), gave the fortunate shareholders more than a hundredfold in return, and I have no doubt there are many more such still to be opened in this county if they go the right way about it. Mining generally has been a great mistake lately; look at the many old mines that have been resuscitated within the last few years, and the large capital expended on them without success, and which is not surprising to those acquainted with it. Unfortunately these old and worn-out mines have been favourites with distant speculators, and they go in for a large capital, and many thousands of pounds are expended at once in the purchase and putting-up of machinery, and also in draining the mine, and by the time this is done they find the nest with the eggs gone, and their capital also, and so the undertaking is abandoned, and mining brought into bad repute.

Instead of re-opening old abandoned mines (I do not mean mines of 50 or 60 fms. deep), my experience suggests the exploration of new ground, plenty of which still remains unwrought, and the capital it requires to open one old mine will prove half-a-score new setts, and if only one of the number prove a success it would handsomely compensate for all. I would like to see a few hundred pounds brought to bear on some virgin ground I could name, where I am convinced very satisfactory results would be seen in a little time. I am pleased to know that a few young copper mines are now being opened in this county, with good discoveries of copper made, which will tell well, I have no doubt, in the Dividend List of 1876, and for the kind of undertaking I here recommend.

Some years since, even before we got any copper from Chili, the copper ore standard was below 90*l.*, and at that time we remember

our mines yielding great profits; and if the standard could then be got to 110 it was thought excellent, and our wish was to keep it there. At present the copper standard is above this figure, and if mines paid so well then, why should they not do it now? So they will, only get the right sort to work upon—that is, well selected new and shallow mines, instead of old deep and worn-out ones. In the one case the expense of working would be little, and in the other an immense yield is necessary to pay even the working cost.

Perranuthnoe, Nov. 15. ——— CORNISH MINER.

MINING IN CORNWALL—FORMATION OF METALLIC VEINS.

SIR,—By theJournal of Nov. 13 I see that Mr. Williams has again cropped up with his intersection-junction theory, and has given to the world just a repetition of what—if I rightly remember—he gave through the same medium two or three years ago. I have not the pleasure of knowing Mr. Williams. He may be a highly respectable man, and I doubt not he is so, and my non-adherence to his theory from his respectability will not detract. When, however, I read his first production, I felt assured that the author was not a miner, and of this I feel assured still. Not only is he betrayed by his non-practical phraseology, but by his—will he pardon me—absurd theory also. Mr. Williams seems to think or to convey the idea that metallic mining operations in order to prove successful should be confined to the junctions or intersections of lodes, and that all capital devoted to explorations elsewnere is so much money squandered or misspent. The adoption of this limited system of working would seem to render it unnecessary that a mining sett should exceed (say) about 12 ft. in length—the length of a usual size engine-shaft. This gentleman appears to be unique in his ideas of mining, and from any support therein that he is likely to derive from anyone who understands it will probably remain so. May I be permitted to inform Mr. Williams that both in this country and in others I have seen some of the richest mines in the world—mines of gold, silver, tin, copper, lead, iron, &c.—wherein the riches held on in one long unbroken continuation on one and the same lode, and that where no junction or intersection of lodes was ever seen—nay, further, it may be told him that the miner, on approaching a junction with a rich lode, or when the lode that is being wrought on is rich, does so with anticipations no less painful and anxious as to what may be the result than he does with pleasureable and hopeful expectations when he approaches it with a poor one—that is to say, that a junction is capable of killing as well as of curing; of changing a rich lode to a poor one, as well as of changing a poor lode to a rich one. True it is that a junction is often found to enrich a poor lode, and even to increase the value of a rich one, but it is known to destroy as well as to create. Nothing under the sun requires a greater amount of sound, practical judgdment, skill, and foresight than the abstruse science of mining, yet, strange as it may appear, every sort and description of men venture unblushingly to advance opinions and give instructions as to how mining operations should be conducted. Mining is the only thing with which they thus dabble, upon which they thus presume to obtrude themselves. It were greatly to be desired that the brotherhood of charlatans withdraw from the field, and let mining rest with those who understand it, lest their theories should be believed in by the ignorant, by those who are incapable of distinguishing the Galilean phraseology, but believing all to be gospel truth, be thereby deceived and led into error.

THE FORMATION OF METALLIC VEINS.—During the last 40 years, to my certain knowledge, one and another philosopher, and some of them men of distinguished abilities, of profound thought and of sound judgment, have tried to solve the abstruse question, but all without avail, without having advanced one step from where they began. The enigma remains as dark as ever; the process which Nature employs seems to be beyond human conception, and so, in all probability, it will remain. Although one has advanced one theory and the other the other—theories aqueous, theories igneous, theories gaseous, and every other kind of theory—not one iota of any or of all of them will bear the test of practice. The miner who opens the storehouse of Nature, who explores the bowels of the earth, sees the fallacy. The *modus operandi* employed by Nature in the formation of metallic veins is, methinks, beyond the finite grasp of man, and will remain as one of the "secret things which belong to the Lord our God."—*London, Nov.* 18. JOHN LEAN.

WEST POLDICE MINE.

SIR,—In a recent communication I intimated my intention of sending to you, for the *Mining Journal*, a statement concerning West Poldice. West Poldice *was* a portion of the Poldice Mines, which were abandoned by the late company about two or three years ago. Sir F. M. Williams, Bart., M.P., believing that the portion now severed from the old mine, and named West Poldice, contained a lode or lodes worthy of trial, formed a company for working it. The mine is bounded on the east by Wheal Unity Wood, on the west by Old Wheal Gorland, on the north by Tregullow, and on the south by the highway leading from St. Day to Chacewater, the area being about 100 acres. About 40 or 50 acres of that area is the land of Sir F. M. Williams; the remainder belongs to the lords of St. Day Manor, of whom Sir F. M. Williams is one. The royalty is 1-20th of money realised from minerals sold. The part of the sett now yielding mineral is in Sir F. M. Williams's entirety. The price per acre for land permanently destroyed is 100*l*. The number of shares into which the mine is divided is now 1753. The number was originally 2000, reduced to 1753 by relinquishments and forfeitures of 247 shares. Sir F. M. Williams holds 1011 shares. The next shareholder is Mr. T. M. Dauke, St. Day, who holds more than 300 shares. The manager is Capt. S. Tredinnick, late of Great Work, in Breage, who succeeded his late father in the management of that old and (formerly) productive tin mine, which was remarkable from the fact that it yielded tin of the best quality in the county, and that three parcels of tin (black tin) were sold for 100*l*. per ton in March, April, and May, 1872. The purser of West Poldice is Sir F. M. Williams, having for his deputy Mr. Henry Michell, the accountant under the late Poldice Company, and who is now purser for Wheal Unity Wood and other mines—a gentleman of considerable experience as an accountant. The last account for West Poldice was held at St. Day, on Sept. 9 last, at which the following particulars were submitted:—

Labour cost from April 3 to July 24			£1241	9 4
Merchants' bills			247	9 1
Dues, 61*l*. 18s.; bankers, 15*l*. 9s.			77	7 0
Total			£1563	5 5
Copper ores sold from May 6 to Sept. 2 inclusive (after dues paid)	£805	8 0		
Tinstone sold from May 28 to Aug. 21	564	8 8	£1369	16 8
Loss for 20 weeks			£ 196	8 9
Deduct a call made May 7, of 2s. per share on 1783 shares	£178	6 0		
Less balance against adventurers last account	136	18 7	£ 41	7 5
Balance against adventurers			£ 155	1 4

The cost was for 20 weeks; returns for 14 weeks only.

Such was the state of the accounts on Sept. 9, when a call of 2s. per share was made; but I have been informed that no further calls will be required.

On Sept. 15 tinstone was sold for	£ 260 6 0
On Oct. 11 ,, ,,	445 14 6
On Oct. 28 copper ore (70 tons) sold for	430 0 0
On the 12th inst. tinstone was sold for	594 4 6
Total	£1649 19 0

The next account will be held in January, when I dare say the fortunate shareholders will have a merry meeting, and perhaps a dividend.

The present operations are as follows:—Drifts from Broad's shaft east and west at the 42 fm. level—42 fms. under the adit, which is about 40 fms. from surface—to intersect the shoot of ore below the 32. When Capt. Tredinnick took the management the driving of the 32 from Broad's shaft was suspended in the eastern end, but an extension of 7 or 8 fms. entered into a deposit of both tin and copper, let in pitches from 10s. to 4s. in 1*l*., now set for 3*l*. 10s. per fm.; the tributers above have 6s. 8d. in 1*l*. for a two-months take. The end is now worth 15*l*. per fathom for tin and copper. West of said shaft the lode is worth 18*l*. per fathom for tin only. When Capt. Tredinnick became manager, five months ago, he found the western end abandoned; but, by driving only 2 ft., he struck a lode there worth from 18*l*. to 20*l*. per fathom. From the 10 to the 20 levels there was a rich shoot of tin, which, however, the late agent "unbottomed," as he *thought;* but Capt. T. resumed at a point 7 fms. from Broad's shaft, by sinking a winze, which he sunk only a few feet before the lode was found to be worth from 50*l*. to 70*l*. per fathom, and that winze is now being sunk for 2s. in the 1*l*. tribute. The tributers on that work sampled 300*l*. worth of tin, the product of one month's working—one man and one boy the first fortnight, and six men afterwards. The 10 and 20 levels are being prosecuted eastward with full "pares," and opening up profitable ground. The 10 west is also being driven, and the men are in daily expectation of a good discovery; six men and one boy earned 90*l*. 1s. 6d., clear of cost, at a tribute of 6s. 8d. in 1*l*., last month. Like discreet people, the company deferred the erection of an account-house, and the incuring of any avoidable expenses, until they could see their way clear to the *necessity* for them. The ore floors are too small for the minerals that would have been brought up and sold if there had been sufficient space to hold them. The floors are being extended with all expedition. A small locomotive engine pumps the water; a 20-inch engine for pumping and drawing is now being placed *in situ*. There are also sheds, smithy, &c., on the mine. The present operations are on one lode only, but there are five or six other lodes in the sett, and the engine-shaft being in a central position, the whole of the lodes can be drained therefrom.

The celebrated Wheal Unity, contiguous to the southern boundary of this sett, gave a profit of 350,000*l*.—one gentleman says 500,000*l*.

Old Wheal Unity Wood, at the east, yielded very large profit. The position of this sett is admirably good. No shareholder that I know wants to sell, and therefore I expect no thanks for furnishing the foregoing facts. A few months ago the shares were almost worthless, commercially, but now they readily sell at about 20*l*. each.

I congratulate the fortunate shareholders on their position, and hope that their and my sanguine expections will not be cut off.

Truro, Nov. 17. ——— R. SYMONS.

DEVON GREAT CONSOLS.

SIR,—The improved and encouraging prospects of these mines have led to the appearance of some peculiar communications to the public press. For several weeks in succession a rumour was sedulously kept afloat in the local papers that one of the largest shareholders had suddenly thrown upon the market a great number of shares, and in the Journal of last week a correspondent exhibits a picture of the mines which, according to the published reports, is far from the truth. Whatever the motives of these correspondents may happen to be, there can be but little doubt the shareholders may, nevertheless, congratulate themselves on the fact that their property is in too sound a condition to be shaken by the unreliable statements of any correspondent actuated by the unfair spirit so clearly manifested in the untoward letter of "J. D."

Nov. 15. ——— A MINE AGENT.

WEST MARIA AND FORTESCUE MINE.

SIR,—There has been much ado of late in the Journal about this mine, and I fear what has been said concerning it, together with the heavy call of 2s. 6d. a share, have frightened many of the shareholders into selling, or, in fact, giving away their shares. Those who are recklessly throwing their shares on the market certainly cannot know the true financial position of the company. If shareholders were to take the trouble to look into the accounts which were presented to the meeting held on Oct. 29, they would find that the last sale of copper ore, which amounted to about 600*l*., and the sale of arsenic about 26 tons, at 7*l*., equal to 182*l*., were not named. We must add to this arrears of calls 410*l*., which the purser should take steps to recover. It is said that the company are sure to win the case now in the hands of the umpire, for which I have been told the company deposited 1000*l*. to defray the expense. This money will come for the use of the company. Then there is the call of 2s. 6d. a share on 12,000 shares, which is 1500*l*. The total amount of these sums is 3692*l*., from which deduct the adverse balance of 724*l*., then there will be a balance in favour of the company of 2968*l*., or, in round numbers, 3000*l*. This, it is calculated, is money enough to open up a good mine, if they cut in south of the shaft at the 115 fm. level to intersect the ore, part of the lode reported to be gone in that direction from the level above. When this is done drive east and west on its course, then put a few good men to open up the Devon Great Consols lode, so favourably reported on at the meeting. Let these be done with all possible speed, and I venture to predict that before the next meeting we shall have a good mine, and instead of our shares being hawked about the country for nothing, they will be anxiously enquired after at from 30s. to 40s. each. SHAREHOLDER.

WHEAL GRENVILLE MINE.

SIR,—Knowing your impartiality and desire at all times to give to both sides an opportunity of freely discussing any subject in connection with the wellbeing of mining, I feel I need no argument in asking your insertion of the following letter, copy of which I forwarded to the shareholders in the above mine on Monday last.

Threadneedle-street, Nov. 18. FRANCIS G. LANE.

WHEAL GRENVILLE MINE.

SIR,—Fearing you may be influenced in your vote at the forthcoming meeting by the statements contained in a letter inserted in the *Mining Journal* of this date, signed "Argus," I wish to say a few words in answer thereto, as this is the last opportunity I shall have of addressing you before the meeting. Fair play is a jewel; why, therefore, did not "Argus" send his communication to the Journal (say) on *Saturday week*, that I might have an opportunity of replying through the same channel before *the meeting, which is to be held on the 19th instant, the next issue of the Journal being on the 20th instant.*

However, I contend that next to having a good cause is a good opponent; now, "Argus" is not a good opponent—he is too insincere. It may be fair to admit in a controversy a portion only of truth, at the same time it is unjust to make wilful misstatements, which I hope to prove to you has been done, by facts intended only for the meeting, but which must now come out to the general body of shareholders. Who is "Argus?" Why, J. Y. Watson, F.G.S., head of the firm of Watson Brothers, mining sharedealers, St. Michael's-alley, Cornhill, and brothers to our secretary, who with him would not only arrogate to themselves the direction of your investments, but also who would be your managers. "Argus," with apparent sincerity, would have you to believe that only "two years ago he criticised the management of Wheal Grenville," and therefore hopes now to be considered an impartial authority. What has happened since to cause him to change his opinions? Will "Argus" answer the question? Was it not *eight years* ago when the services of the "Committee of Management" were dispensed with, that he began to express his disapproval of the management? Was not "Argus" a member of the committee? And did not his disapprobation continue to within the last three weeks? Why did not "Argus" attend the last meeting in October? Was it not because he still remained unsatisfied? He knew there was great dissatisfaction when even at the "July" meeting he opposed my proposition for a Committee of Management, which he would have you now to believe meets his approval.

If he so approves of the management, why did "Argus" send for me in August last to meet him at his office, knowing I was going to Cornwall to meet Capt. Josiah Thomas, and make a suggestion to me to change the management by amalgamating with South Condurrow? I ask you to read the various letters inserted in the *Mining Journal* in August and September last, signed by "Argus," in confirmation of his endeavours to bring about this arrangement. And what more did he propose? That as his brother, the secretary, would never consent to give up the management, and was opposed to this amalgamation, I should join in buying him out. I am not asserting mere fancies, as the party who called upon me with the message "that J. Y. Watson wished to see me" was then a large holder, and approved the scheme, but being no longer a shareholder, I need not mention his name. Moreover, J. Y. Watson even at this interview described his brother as obstinate, and told me he did not approve of the management, and distinctly said, "I make no secret of it." However, after my first circular to the shareholders, and I informed him of the very numerous expressions of sympathy with my cause which I had received, judge then of my surprise when this apparent ardent reformer told me he had altered his mind, and would now go for a committee of management, but if I went for other changes he should consider it a personal matter and oppose me "tooth and nail."

I will not here enter upon any discussion as to whether "Argus" did or did not approve of the dividends paid three years ago, but will inform the shareholders at the meeting how this was done and why it was done; this I know, that the firm of Watson Brothers approved of the dividends at each meeting, being present at their declaration.

"Argus" would have you to believe that the development of the mine has been progressing to an enormous extent by saying "From that time to this a large expenditure has been going on at the mine." Note this! It is very true, a large expenditure has been going on. But how about the development of the mine? Why, since September, 1873, to October, 1875, the north shaft had been sunk only 15 fms., 5 fms. of this has been done from July to October, 1875 (see October report), clearly showing the ground is easy, and the new shaft, which in September, 1873, was down to the 150 fm. level, is now only to the 160. Where, then, has been the large expenditure in opening out the mine? I fancy I can hear Mr. Secretary crying out "Oh! save me from my friends! My relative, who has taken up my cause, is making it worse than I did in my circular."

Now I come to a personal matter. "Argus" again wishes to be sincere to the shareholders, as he has been to his brother, and says—"Let it be understood that I make no insinuations against Mr. Lane personally." Why this admission? He then labours hard to endeavour to prove some transactions with Holderness and Nott. Everyone who has transactions with the Stock Exchange knows that shares and stock are frequently carried over from one account to another, and that the bargains are always bought and sold bargains—*i.e.*, bought for cash and re-sold for the following account at the "making-up price" fixed for the day by the recognised authorities, and on these terms I bought a number of shares from Holderness and Nott. I never was a mortgagee or trustee, but became the actual owner of the shares for the time at a much higher price than 5*l*. per share. Now comes the question, who recommended Holderness and Nott to purchase these shares, and from whom did the shares come? Certainly not the members of the Stock Exchange. The books of the company should show who were the vendors. Perhaps, however, the issuing to the shareholders by our secretary of a certain report addressed to Holderness and Nott by the mineral agent of the Duke of Leeds, in January, 1874, may enlighten some minds. I shall call attention to this report at our meeting, and perhaps our secretary will be prepared to state who authorised the issuing of the report, and for what object.

Now "Argus" wishes to justify the conduct of our secretary in wanting in courtesy, by stating that for years he has been one of the largest holders in the mine, and paid calls more than four times his salary. But he does not inform you that he also is the largest jobber in the shares, and that he influences the market to raise or depress them as he thinks fit; this is one of the abuses I complain of, the salary as secretary is merely a secondary consideration to him. Although it was orignally fixed at 5*l*. 5s. per month, 13*l*. 10s. is now charged; this even is nothing compared to the profits in buying and selling. I say without fear of contradiction our secretary has bought and sold more shares in the past 12 months than all the dealers outside and inside the Stock Exchange put together. A secretary, however, is a paid servant of a company; whether the salary be small or large is another matter, this is generally regulated by the shareholders according to the ability required or possessed by those they employ, and although many of us are sufferers by the arrogancy of a certain class, yet those who ought to know better should so behave themselves as not to call forth censure in the terms our Chairman expressed at last meeting, when he stated, with the approbation of most of the shareholders present, that a certain person's conduct was ungentlemanly and uncourteous. To such or the great "Argus" I rather think I am not the person to hold a candle to.

Those who know me, and they are pretty numerous, having been connected with mining affairs outside and inside the Stock Exchange for 25 years, will give me some credit for a proper regard for honesty and integrity, otherwise I do not think I should be allowed to continue a member of the Stock Exchange. "Argus" concludes his letter with a request not to send your proxies to strangers, to be used anyhow. I think those who have already sent me their proxies know what they are doing, and I can assure them and all others who may trust in me they shall have no cause to fear of that confidence being abused, the very fact of my being a stranger to the company in a certain measure, and the exposure of certain irregularities at last and previous meetings, when out of eight shareholders present six voted for me, should convince "Argus" that the shareholders are becoming alive to the sense of their position, and will not tolerate being dictated to by professed authorities. I would ask "Argus," as also our secretary, who assume to possess such great practical knowledge, how comes it that out of the 101 mines promoted and managed by them, with an expenditure amounting to millions sterling, they have paid less than 10,000*l*. in dividends? and how long previous to the dividends paid in Wheal Grenville, in 1872, they paid one in any of their concerns? Not one have they paid since. What is the cause? Have they erred in judgment, or has it been ignorance and mismanagement? FRANCIS G. LANE.

Threadneedle-street, Nov. 13. ———

WHEAL GRENVILLE MINE.

SIR,—Mr. Lane has issued a circular to the shareholders of Wheal Grenville which he calls a reply to my letter of last week, and not being satisfied with the old method of abusing plaintiff's attorney when there is no case, he has gone further, and made unjustifiable perversions of the truth. He first asks why I did not write you a week before, and so give him an oportunity of replying in your paper. I answer that I had no intention of writing at all, until certain things came to my knowledge, and I found the whole dispute, as I said, was degenerating into a personal attack upon the secretary, and as it appeared to me regardless of the interests of the mine. Mr. Lane says that I knew there was great dissatisfaction when even at the July meeting I opposed his proposition for a committee of management, &c., and my answer is to this that I have not attended a Grenville meeting for several years. I was not present at the July meeting, and neither directly nor indirectly did I oppose his committee.

If I approved of the management why did I, he says, "send for him in August last?" My answer is, I never did "send for him." My letters in the Journal at that time fully expressed my views as to the expediency of amalgamating with South Condurrow. I showed that it would greatly reduce the costs of both mines, save half the costs of management, and be to the material benefit of both properties. I knew, however, that such a proposition would be opposed by the "staff" of both mines, and in conversation with a large shareholder, who highly approved my plan, he said the secretary had told him that if an amalgamation took place he would sell his shares. I then asked this shareholder if he knew Mr. Lane's views on the subject, and he said he would try and ascertain them. Soon after this I found Mr. Lane in my office, and in the conversation that ensued I was perfectly open and candid with him. I referred to the opposition that might be expected from the officials on both sides, repeated the remark the shareholder referred to had made to me in regard to the secretary selling his shares, and very likely added that we might have to buy them. Something, however, in Mr. Lane's manner shadowed forth a personal attack upon the secretary, and I distinctly said I would not only be no party to it, but should oppose any personal attacks whatever. In Mr. Lane's next paragraph he states that he knows the firm of Watson Brothers approved of the dividends at each meeting. So far from this being the case, however, they openly protested against them.

Mr. Lane's explanation of the affair with Messrs. Holderness and Nott may be true, but it is totally at variance with that given, as I understand, by Mr. Nott himself. Everyone knows the rules in regard to buying and selling shares at the "account" on the Stock Exchange, but that is a totally different thing from *borrowing or lending money.* Between December, 1873, and February, 1874, Messrs. Holderness and Nott transferred to Mr. Lane 150 shares; on Feb. 14, 1874, Mr. Nott transferred 100, and on May 14 200 shares, and at the time he made the transfer Mr. Nott informed the secretary that he had not sold, but had obtained an advance upon them. Up to his failure he always spoke of the shares as his, and at that time they were worth 5*l*. per share. Let me add that only a week ago a solicitor, acting for creditors of the firm, was informed by the trustee under the bankruptcy that he had received no notice whatever of the sale or otherwise of the shares.

Mr. Lane next observes, in what appears to be his usual way of "insinuation," "Who recommended Holderness and Nott to purchase the shares?" I cannot answer this; those gentlemen were perfect strangers to me and to my firm, as they were also, I understand, to the secretary, until *after* they had become large shareholders in Grenville. I have some recollection that after this Mr. Nott called, and asked my opinion of the mine, and I told him he had better, for his own satisfaction, have it inspected by some independent agent, and as he knew of no one I added that I had myself great confidence in the mineral agent of the Duke of Leeds, and this gentleman inspected for him. His report, when received, was handed by Mr. Nott to the secretary, as I understood, with a request that a copy might be sent to every shareholder.

Mr. Lane says the secretary has bought and sold more shares in Grenville during the past 12 months than all the dealers outside and inside the Stock Exchange. I am not in the secretary's secrets, and have not for years had a transaction with him in these or any other shares; but I understand he openly stated at the meeting of Grenville that Dr. Brooking, who determined to withdraw from Mr. Lane's committee, offered his 500 shares to him, and that he had purchased them—more, perhaps, than all others had bought in 12 months. I have said enough to show Mr. Lane's peculiar ideas of veracity, and the recipients of his circular will be fully able to appreciate the value of his introductory remarks—"It may be fair to admit in a controversy a *portion only of the truth*, at the same time it is unjust to make *wilful misstatements.*"

Mr. Lane finally congratulates himself that the parties who have sent him proxies "know what they are doing!" Here let me relate a circumstance in regard to obtaining proxies that came within my own knowledge. A large shareholder in the country received a letter from a *perfect stranger*, and marked *private and confidential;* in this he asked the shareholder to send his proxies to Mr. Lane, basing his request upon a charge against the secretary. The shareholder replied that he should decline to consider such a letter "private and confidential," investigated matters for himself, and gave his proxy to the secretary; but many others if they also received these "strictly private and confidential" charges may have believed them to be true, and have sent their proxies accordingly. Again, a large shareholder gave his proxy to Mr. Lane, and then wrote to the secretary offering him his shares at 1*l*. 10s. per share above the market price, which, had the offer been accepted would have been

a pretty stroke of business on the part of the shareholder, and would have deprived Mr. Lane of his proxy.

In conclusion, Sir, for the present, let me add I am not averse to—nay, I rather enjoy—a fair stand up fight, but I confess the greatest abhorrence of baseless insinuation, and the wiles and artifices of "sneakdom."—*Nov.* 17. ARGUS.

NEW CONSOLS TIN AND ARSENIC WORKS.

SIR,—Some information in regard to the progress of this mine used to appear in the Journal, and at one time the shares of 3*l.* were selling above par, at which price I bought, and now they appear unsaleable (when quoted) at 25*s.*, and no intelligence about the mine, either privately or otherwise, ever appears in your or any other journal. The prospectus (when amalgamated with the Great Consols) is dated Feb. 5, 1874, but in so far as I am aware no meeting or report to the shareholders has ever taken place. In a circular, dated March, 1875, soliciting the shareholders to increase their holdings in the mine it was stated that the directors hoped to be in the market in the course of four or five weeks from that time, and to make large and regular sales of copper and silver precipitate, as well as tin and arsenic, and that is the last the shareholders have heard on the subject. Why should the shareholders of this company (if it is still in existence) not have regular annual reports? or only have communication from the managing director when he wants them to increase the number of their shares. I see the Devon Consols are selling large quantities of arsenic at a high price. SHAREHOLDER.

[For remainder of Original Correspondence, see to-day's Journal.]

Meetings of Public Companies.

PANULCILLO COPPER COMPANY.

The general meeting of the shareholders was held at the London Tavern, on Wednesday,—Mr. JOHN PENDER, M.P., in the chair.

Mr. J. S. ALEXANDER (the secretary) read the notice convening the meeting, and the minutes of the preceding one, which were confirmed. The report and accounts, having been previously circulated among the shareholders, were taken as read. The report stated that—

The accounts, made up to June 30 last in Chili, and to Sept. 30 in England, show a net profit for the 12 months of 14,009*l.* Of this profit, 9968*l.* accrues from the operations in latter half of the financial year, the profit in first six months having amounted to 4041*l.* 4*s.* 6*d.*, as shown by the auditors' statements rendered to the shareholders on May 21 last. On the recommendation of the committee of shareholders, appointed at last general meeting to confer with the board, the directors resolved to issue debentures for the nominal amount of 100*l.* each, in all for 100,000*l.* to be secured by a first mortgage on the company's property in Chili. Accordingly an allotment was offered on Nov. 21 to each shareholder. On Dec. 4 the directors considered the advices to hand from Panulcillo justified them in closing the subscription list, which then amounted to 80,000*l.* The company was thus saved the expense of bonus on issue of 20,000*l.*, which would have been 3000*l.* Instead of distributing the cost of bonus, amounting to 11,935*l.*, on allotted bonds, for 79,900*l.* (one bond being cancelled by non-payment of instalments), the directors have deemed it advisable to extinguish the whole amount this year, thus reducing the apparent profit of the 12 months from 14,009*l.* to 2024*l.* The effect of this measure will be to relieve future accounts of an annual charge to meet the discount incurred on the issue of the debentures. The numbers of 20 bonds drawn on Oct. 15 for payment on Dec. 15, were advertised in accordance with stipulation contained in the Indenture of Agreement; 6593 tons regulus were made at Panulcillo in past year, containing 3105 tons copper contents, by analyses. The price realised was $15·38 per quintal metrico, which was little over the rate of previous year—$15·33 per quintal metrico. The much more favourable result, as compared with previous year, of operations now recorded, is attributable mainly to the ores extracted from the Panulcillo Mines having been better; and to the ores needed for mixture having been purchased more cheaply. The board are satisfied that the most vigilant economy is being exercised by the management at Panulcillo to keep down costs; and as some of the cheapest shipments of fuel will not come into operation before the present financial year, there seems good reason to look for equal if not better results, unless copper prices should decline. The half-yearly report states that the Panulcillo Mines continue to open out favourably; and this is confirmed by later advices. The reserves in sight at stock-taking were estimated at 850,000 quintals, against 600,000 at the same date in 1874.

The CHAIRMAN said: When I had the pleasure of addressing you at the last meeting we laid before you a very complete report upon the affairs of the company. In that report we showed, unfortunately, a considerable loss upon the workings of the year, but we also showed that if we had the power to go on with the company, the prospects were such as to warrant us going on, and that the statement made in that report, and also that of Mr. Graham at the meeting, were likely to be realised. I am glad to say the report now before you entirely confirms the views the directors took at the time, therefore it is satisfactory to the directors to find the figures there put before you have been confirmed. To enable us to meet to-day we were fortunate in having the responses from a considerable number of shareholders for the debentures. The debentures have been taken up to an extent which has enabled us to place the company in a thoroughly sound financial position—so sound that I believe there is no company coming before its shareholders that can show much more than we can in favour of financial soundness. The report gives you a fair statement of the present position of the company, and the change in the last year, in which there had been a gain of something like 24,000*l.*, or a net of 14,000*l.*, as compared with a loss of 24,000*l.* the previous year. With such a change shareholders will naturally wish to know how such a change has been brought about. Upon all such points it is always very much better to quote figures than make vague statements. With regard to our arrangements with the railway we have had a great deal of difficulty; it had appeared to us the railway has been living upon us. We have made certain changes, but I do not think all that can be advantageously made has yet been adopted. It has been shown by the statements before you that a net profit of 14,000*l.* remains, after payment of all interest and coupons (8000*l.*)—in other words, supposing the debentures paid off, such a profit would have appeared as 22,000*l.*, or sufficient for a 10 per cent. dividend on the company's share capital. It is, perhaps, needless to remind you how an advance of 1*l.* on copper values would add to the company's profits; that, in fact, a difference of 1*l.* on the ton of bar copper should amount to something near 3000*l.* on a year's full operations at Panulcillo. The average price in England for Chili good ordinary bars was 86*l.*, as against 81*l.* in the previous. The price realised for the company's produce in regulus was 29*l.* 5*s.* 11*d.* in the past year, as against 29*l.* 4*s.* 1*d.* in the previous. It naturally strikes one that there does not appear by these figures such an improvement in the past year's Chili price (realised for regulus) as would correspond with the enhanced value in England of Chili bar, and it is well understood that English prices in the long run regulate those of Chili. In the first of the two years, however, before completion of the Brazilian cable, the changes of the market were not known so promptly, and the drop in Chili bars here of 10*l.* in the months of May and June, 1873, was not very quickly responded to in Chili, so that the first of the two years, now contrasted, benefited by the lingering higher prices of a former period. Taking into account, however, the fact that the ley of past years' regulus was slightly lower than that of the previous—say, 47·088 per cent., against 47·26 per cent.—there really was an improvement in price realised for past years' production as compared with the previous amounting to about 1000*l.* This amount goes a very small way, however, towards making up the difference between a loss of 24,000*l.* in one year, and a profit of 14,000*l.* in the next—say, a difference of 38,000*l.* between the two years. But that difference can easily be accounted for by two items—ores, 27,000*l.*, fuel, 9000*l.*, which with economy in general charges, and the before-mentioned 1000*l.* improvement in price realised, make up the difference of 38,000*l.* First as to the ores it may be explained that the ley of Panulcillo ores was estimated to be better by nearly 1 per cent. last year than in the previous, and it is easy to recognise the importance of this in the result of Panulcillo operations. The greater proportion of Panulcillo copper there is in the regulus realised the better will be the pecuniary results. Panulcillo ores costs at the furnaces only a quarter of the price per ton of purchased ores, although they contain more than half the copper contents of such ores; and in the past year there were 1360 tons less of purchased and 5755 tons more of Panulcillo ores used than in the previous year—proportionate, of course, to the quantity of regulus produced in the respective periods. The figures more in detail are as follows:—In the year now accounted for 51,519 tons Panulcillo ores were used, at a cost of 38,875*l.*, a proportion greater by 5755 tons, costing 4340*l.* more than in the previous year (Panulcillo ore cost 15*s.* per ton). In the past year there were 11,242 tons purchased ores used, at a cost of 3*l.* 4*s.* 3*d.*, amounting to 36,120*l.* At the rate of previous year 12,600 tons would have been used, and the cost in that year was 5*l.* 7*s.* 3*l.* per ton. The improvement effected in the price, upon the quantity used, was as much as 24,160*l.*, but, taking into account the diminished quantity, the whole saving on purchased ores amounted to 31,550*l.* Upon the whole quantity of ores used in the past year, compared with the previous year, there was thus a reduction in cost of purchased ores of 31,550*l.*, and an increase on Panulcillo ores of 4340*l.*, making a net reduction in cost of ore of 27,210*l.* Next, as regards the fuel. There were proportionately 800 tons more of coal and 220 tons more of coke used during the past year than were used during the previous one—say, 10,070 tons of coal and 5037 tons of coke, costing 57,537*l.* at Panulcillo, a cost which is 9100*l.* cheaper than the fuel used in the previous year. Owing to the scarcity of labour there was less regulus made in the past year than in the previous—say, 6593 tons, against 8146 tons, the copper contents being 3104 tons and 3792 tons respectively. While less ore, however, was thus taken out of the mine the reserves remaining are greater, being now estimated at 850,000 quintals metrico, against 600,000 at the two previous half-yearly stock takings. Future prospects may be looked upon as cheering. The steadiness of the home copper market is of importance to the company's interests, and most people seem to think a change when it takes place will be upwards, as it is said the world's consumption is quite keeping pace with production, if it does not really exceed it at present. A much higher price, however, is perhaps not to be desired in the interests of Panulcillo, as it would tend to encourage the development of production elsewhere. In the current year, supposing an equal average price secured for the company's regulus, and purchased ores obtained as cheapily, the result may be expected to be as good as in the second half of the year now accounted for, (say) a profit at the rate of 20,000*l.* a year. Indeed, unless something unforeseen should occur the profit would be greater by 2000*l.* or 3000*l.*, which is a very moderate estimate of the greater cheapness of fuel still to come into operation. The manager, too, was endeavouring to increase by 10 per cent. the production of regulus at Panulcillo, and workmen were more abundant at latest dates. An increase of 10 per cent. in production would, of course, involve a larger proportion of profit, as the general charges would not be increased. The season, unfortunately, has been a dry one, which caused scarcity of pasturage, and consequent difficulty in getting delivery of the ores purchased for mixing. I have given you this careful statement of figures to enable you to form your own judgment just as well as we can. I believe the company to be in a sound, financial position, and if things go on during the next two or three years as in the past twelve months the property may very materially increase in value. I will now move that the report and balance-sheet be received and adopted.——Mr. EDWARD JOHNSTON (deputy Chairman) seconded the proposition.

The motion was put and carried unanimously.

Mr. Frank Walter Bond was elected a director.

Mr. Alphonse Henri Berthoud and Mr. James Andrew were re-elected directors.

The CHAIRMAN regretted the absence from indisposition of Mr. James Andrew. They were all aware that Mr. Andrew was really a practical copper smelter, and his advice and co-operation were always freely given to the company; therefore, as a director he was of great value to the company.

Messrs. Harding, Whinney, and Co., the retiring auditors, were re-appointed.

A vote of thanks to the Chairman and directors closed the proceedings.

PATENT GUNPOWDER COMPANY.

An extraordinary general meeting of shareholders was held at the City Terminus Hotel, on Thursday,

Major-General G. V. MAXWELL in the chair.

The report of the directors stated that they have felt it right to follow up the step they were recently obliged to take of calling up the last instalment on the first issue of the company's share capital, by convening a general meeting of the proprietary to consider the company's position and the means of carrying on its future operations. The balance-sheet submitted to the last yearly general meeting and the statement of assets there given, will have made it clear to the shareholders that, excepting in the event of an early and large sale of the company's produce further working capital would be required. The board, indeed, had much reason to hope, from the favourable opinions expressed to them of the company's powder, that, as from the last meeting, the company's business would have been self-supporting, but their views have proved too sanguine: and, although all the trials of the powder which have taken place have proved highly successful, and demonstrated the great value of the powder as an explosive, and many establishments have through their managers promised to use it, yet up to the present time the sales have been very gradual, and of no great amount, and the directors find that, like other new articles of commerce, the powder must make its way thoroughly in public estimation before consumers will adopt it and give up the use of what they have hitherto dealt in.

At the same time, and though their present available means are rapidly diminishing in the necessary expenses of the company, the directors are far from being discouraged. It has been their lot to assume office when too great an inroad had been made in the company's resources by unprofitable and useless outlay, and hence the fact that their working capital promises to be absorbed before success is realised. The board felt they were not justified in continuing the company's operations till the whole of the present capital was expended before letting the shareholders know the state of their affairs, but that it was rather their duty to call them together, and elicit their views as to what should be done under the circumstances. The sales of patent gunpowder, from July 1 to Oct. 30, 1875, amount to 665*l.*, and of black powder 1830*l.*, of which 1500*l.* is on consignment. A sale of a single ton of the patent powder per week will, the board believe, pay all the company's working expenses, which (excepting for materials, of which there is a large stock on hand) will not exceed 90*l.* or 100*l.* per week, and for this sum at least 4 or 5 tons could be made. The board recommend that they be allowed to continue their efforts to bring the powder into general use, and to use the company's borrowing powers as occasion may require for providing the necessary means, and that the present meeting stand adjourned for six months to give time for these trials, at or before the expiration of which period it may be reasonably hoped that the value of the powder will be sufficiently established and appreciated to ensure a large consumption, which is only needed to render the company financially prosperous. The directors have recently turned their attention to the manufacture of sporting cartridges; and, as far as they have gone, they have reason to hope that there is an opening for a profitable business.

The CHAIRMAN said the directors had thought it advisable to confer with their constituents upon the position of the company, and call them into counsel. At the last meeting, in July, he told them he considered they had arrived at that state that they had overcome all their difficulties, and that there were fair prospects of success. Ever since he had belonged to the company he had always believed that when manufactured there would be no trouble in effecting a sale of their powder, and that a large business was a certainty. As far back as 1872 their Chairman—long before he (Gen. Maxwell) occupied the chair—they were led to believe there would be no difficulty in finding customers. He was sorry to say experience had been disappointing, as they found it very difficult to induce miners to change old habits, although when they tried the powder it always proved successful. Large experiments had been made lately by the Newcastle Commissioners, the quantity of rock that would take 3000 lbs. of the ordinary powder to blow away had been most effectually done by the patent powder by 750 lbs.; that amount of patent powder had displaced 20,000 tons of rock, and in every respect the explosion was most satisfactory. Successful experiments had been made at different quarries with satisfactory results. Testimonials had been received from managers of quarries and engineers that it had done more than could be expected of powder. The manager and captain of a Spanish mine had forwarded a most satisfactory certificate, stating that it split hard iron ore and soft hematite, in every case the breaking force was quite equal to five times its weight of ordinary blasting-powder. There was increasing faith in the intrinsic value of the patent powder, but there was the fact that orders had not come in, and, therefore, they must wait until they did come. The directors had done their best in every way to promote the welfare of the company. They had appointed 11 agents in different parts of the country, and they could only wait until they brought orders. He then proposed that the meeting be adjourned for six months, by which time they would know the result of the arrangements now in progress.

Mr. COPE seconded the proposition. The accounts showed the affairs of the company were in a very narrow compass, and he knew what their dead working expenses were, and, therefore, what it would cost to carry on the company for the next five or six months. Even assuming there were no sales at all, they calculated at the outside the outlay would not exceed 90*l.* to 100*l.* per week, estimating as much as 22*l.* for the agents' expenses. Assuming the calls would be paid, the expenses for five or six months could be met out of the resources. They wished they could have given a better account of their sales. The works at Ewell were a little more than paying their expenses, and all that was necessary to ensure success was to get their powder pushed on the market. The directors felt if the shareholders among themselves could find a couple of commercial directors the success of the company would be secured. The manager told them the works could almost produce 5 or 6 tons per week, so that they had a pretty good prospect before them. All they wanted was sales.

Mr. METCALF (a director) had spent a few days at the works. He found they had been completed, except roofing the house containing the three presses; when that had been done they could make 15 tons per week. Their plant now was equal to turn out 6 tons per week. They found the profit upon cartridges for sporting purposes was very much larger than that upon those used for blasting purposes.

Mr. NEWTON said it had been circulated that the demand for their powder would be always in excess of the quantity they were able to manufacture, which statement did not seem to tally with the remark that the powder could not be sold.

Mr. WEATHERLEY said the statement now made was very different to that previously received by the shareholders. If the property was absolutely valueless it was no use putting in more money to keep it afloat; for his part he would rather put up with the present loss than put more in without some more substantial prospect of success. Personally, he believed the property to be valuable, and that it would prove a commercial success.

The CHAIRMAN said that all the directors had had to complain of was an absence of orders. They were an unpaid board, and they asked the shareholders to give them two members of mercantile experience to help them out of their difficulty.

Mr. HENRY STAPLES said the report by the Newcastle commissioners contained the most convincing evidence of the value of the superiority of the powder, and it seemed that miners could use it in deep mines and badly ventilated ones, as when the cartridges were exploded there was no consumption of air or generation of deleterious gases. It seemed quite clear that they could make a large profit, and he did not see why they should be in this desponding state. If they could make a profit of 40*l.* to 50*l.* per ton, he did not see why they should be so desponding. The powder supassed the expectations of the patentee.

Mr. MUSPRATT said the powder was 20 per cent. cheaper than dynamite or black powder, considering it was five times the strength.

A vote of thanks having been passed to the Chairman and directors, the meeting then adjourned for six months.

CARN BREA MINING COMPANY.

A meeting of adventurers was held at the mine, on Wednesday—Capt. TEAGUE presiding. The accounts for the three months ending June showed—Labour costs, 6709*l.* 7*s.* 5*d.*; second instalment of extra month's cost, 500*l.*; merchants' bills, 2472*l.*; carriage, 360*l.* 16*s.*; dues, 365*l.*; Vice-Warden's assessment, 10*l.* 11*s.*; and other bills; making a total expenditure of 10,475*l.* 11*s.* 5*d.* The sales were—By copper ore sold, 471*l.* 9*s.* 4*d.*; black tin, 163 tons 13 cwts., 8362*l.* 17*s.* 1*d.*; and arsenic, 150*l.*; making the total receipts 9007*l.* 8*s.* After deducting the costs, a loss of 1450*l.* was shown, and deducting this from the balance in the bank in favour of the adventurers a clear balance of 2221*l.* 3*s.* 8*d.* still remained.

Mr. HINGSTON (Liskeard) pointed out that the returns for the quarter to June were not so large as those of the previous quarter, and asked whether there was any falling off in the mine?

Capt. TEAGUE replied in the negative, saying the principal reason of the smaller returns was in consequence of their being unable to avail themselves, as they expected, of the Monument shaft, while they had also been interfered with a little in respect to their returning a large amount of "burnt leavings." Then their pulverizers had not acted properly, and they now had a large amount of stuff which they could not put into the accounts as returns. There had also been one or two other things to militate against them, but still the mine itself was looking as well as previously, and he had every confidence in it.——In answer to one of the adventurers, Capt. TEAGUE stated that 3000*l.* had been paid in dues since the mine ceased giving them dividends.——Mr. HINGSTON thereupon expressed the opinion that the lord ought to help them by reducing the amount of dues, and moved that the matter be represented to Mr. Basset, with a view to some relief.——This was agreed to, and a committee, consisting of Capt. Teague, Mr. Bolitho, Mr. Hingston, and Mr. Hall, appointed to wait on Mr. Basset.

TINCROFT MINING COMPANY.

A meeting of adventurers was held after the foregoing, Captain TEAGUE again presiding. The accounts were: Labour costs for the three months ending June, 4380*l.* 17*s.* 8*d.*; merchants' bills, 2343*l.*; carriage, 211*l.* 3*s.* 1*d.*; dues, 329*l.* 13*s.* 3*d.*; assessments, 10*l.* 13*s.*: total, 7276*l.* By tin sold, 176 tons 17 cwts., 8731*l.* 11*s* 4*d.*; extra carriage, 30*l.* 16*s.* 4*d.*; arsenic, 67*l.* 13*s.* 10*d.*; total, 8830*l.* 1*s.* 6*d.* After deducting costs, a balance of profit of 1553*l.* 19*s.* was shown, which, added to that from the previous quarter, amounting to 105*l.*, left a clear balance to the adventurers of 1659*l.* 14*s.* The report of the agents stated that "the mine continues to look well, the only drawback being the ruinous low price we are getting for our produce, but must hope for better prices."

Capt. TEAGUE, in moving that a 5*s.* dividend be declared, called attention to the winze, which was worth for tin 120*l.* per fathom; it was a very fine looking lode, and might be valued rather higher than at present. The accounts and report were adopted, and a 5*s.* dividend declared, after which

Mr. HINGSTON moved that the best thanks of the meeting be given to Capt. Teague and the agents for the industrious, skilful, and able manner in which they had conducted the mining affairs of the adventurers. They did not meet at the mines under the happy circumstances they used to do, but, whilst they hoped for better days, those who in times of depression had the management of affairs deserved their sympathy and respect.——Capt. TEAGUE, in reply, said if ever there was a time when the agents of a mine required sympathy and assistance it was at the present time. He assured them that it was now up hill work; there were so many conflicting interests to contend with, and everything was so depressed, that the energy of the agents and himself was considerably taxed. At the same time he was pleased to say that everybody was working with a will and doing the best they possible could. For himself, he had confidence in the mine—and he did not say what he did not mean—and in order to pull through they must have confidence in the agents and him.

BOTALLACK.—The quarterly account was held at the mine on Wednesday. The profit on the quarter has been 400*l.*, reducing the debit balance to 613*l.* During the next quarter the agents do not expect to raise as much copper as during the past quarter, but the same quantity of tin. Many points are very promising, but the surface water has filled some parts of the mine to a depth of 7 or 8 fms. This, however, is being successfully dealt with.

ST. JUST (Levant).—An account meeting was held on Tuesday, Mr. R. White, purser, in the chair. The accounts for the 16 weeks ending Sept. 25 showed a loss of 200*l.* on the working for that period, but 200*l.* worth of unsold copper was credited in the account; the mine, therefore, really paid cost. The agent's report is favourable. They expect to raise as much tin the current 16 weeks as they did in the last, and 200*l.* worth more copper. The new company has called up nearly 25,000*l.* in about four years, and this is the first meeting without a call. It is now confidently expected that no further calls will be required.

SOUTH WHEAL CROFTY.—At the meeting on Tuesday the purser stated that the balance against the adventurers, as brought on from the last account, was 997*l.* 3*s.* 2*d.* The cost-book to-day shows a trifling profit of 10*l.* 1*s.* 9*d.* The price of coal has fallen, and we are now paying 17*s.* as delivered at the mine. We have still to see the result of the amalgamation of the two south lodes. Capts. Josiah Thomas, James Johns, and John Jory say:—"The new pitwork which we fixed in the engine-shaft and in Bickford's shaft about three months since is working exceedingly well, and by the change we made a saving has been effected of about 25 tons of coals per month. We have also been able to sink Bickford's shaft without the hindrances we formerly had to contend with from breakages, &c."

NORTH LEVANT.—The four-monthly meeting was held on the mine last week, Mr. Richard Boyns (purser) presiding. There had been expended on labour, 1847*l.*; on materials, 332*l.*; on coals, 173*l.*: total, 2352*l.* The copper sold amounted to 2573*l.*, leaving a profit of 221*l.* to be carried to next account. The average price of tin for the four months was 49*l.* 9*s.* per ton. In addition to thus paying a moderate profit with no lode richer than 7*l.* per fathom, North Levant is being developed in every direction. The agents expect to raise quite as much mineral in the next four months, and with the brightening prospect of the metal market, shareholders were in good heart. Capt. Boyns said—"My private advice from most competent authorities in Queensland and New South Wales satisfy me that unless there be fresh discoveries, the supplies from thence will continue to diminish, and I am, therefore, quite confident, apart from political disturbances, that a much better price for tin will be obtained in 1876 than in 1875." As to the speedy advent of better times in St. Just district, the news is that Botallack looks capital, Levant is now paying costs, Wheal Owles has a good and lasting lode, and has conquered the influx of water. Cape Cornwall is a fine speculation if the lords of that and neighbouring properties can arrange terms.

[For remainder of Meetings see to-day's Journal.]

IMPORTANT JUDGMENT AFFECTING DIRECTORS.

The Court of Appeal at Lincoln's Inn (Baron Bramwell and Justice Brett sitting with the Justices of Appeal) gave judgment in the case of the Western of Canada Oil, Lands, and Works Corporation, on Appeal from the Master of the Rolls. His lordship had ordered the three gentlemen who, at the instance of Walker, the "promoter" of the "company" (which never consisted of more than the seven persons who signed the Memorandum of Association), became its Canadian directors, and had 30 shares, of the nominal value of 100*l.*' allotted to each of them as fully paid-up shares, by way of their qualification for the office of director, to be placed on the list of contributories for 3000*l.* each as the holders of so many unpaid shares. The acceptance by them, as the company's agents, of shares representing so much of the company's capital was a breach of trust on their part, and they must refund to the company the profits which they had improperly retained without the knowledge or consent of their principals. The decision has now been unanimously reversed by the Court of Appeal. Their lordships concurred with the Master of the Rolls in holding that a breach of trust had been committed, but (with much regret on the part of at least one member of the Court) they could not agree with him in thinking that the proper remedy had been resorted to in the present instance. The shares which the directors had received must be treated as having been originally allotted to Walker, the "promoter," as fully paid-up shares in part payment of the purchase-money, and as having been handed by him over to the directors in pursuance of the agreement between them made before the contract with the vendor was ratified. Those shares had been treated by the Court below as if they actually represented their nominal value, but the evidence was that they were never worth more than 1*l.* each. There were several remedies which it was open to the company to pursue in order to recover from these directors the profits they had improperly obtained; but this remedy of settling them on the list of contributories for 30 unpaid shares (when, in fact, the shares had been fully paid-up) was clearly not the right one. The appeal, therefore, must be allowed.

This is another instance of the want of equity in the reading or meaning of the 25th section of "The Companies Amendment Act," 1867. In this case the contract was set out in point in the preamble of the Articles of Association of the new or purchasing company. That company was formed upon and specially adopted the contract, and the shares as 3*l.* paid out of 4*l.* (representing the agreed purchase money) were handed to the liquidators of the vendor company, and by them distributed to such of the members of the vendor company as chose to accept them. These Articles of Association were registered with the preamble so set out, and it is futile to argue that anyone of the public—searching the registered papers at the Registration Office—could have been more misled by

such preamble in the Articles of Association than would have been the case had a separate contract been registered.

Does not this case seem to be at all-fours with the decision of the Court of Appeal on the 12th inst., in *re* the Canadian Oil, &c., Company? when, apart from the breach of trust therein alleged to have been committed, the "promoter" had fully paid-up shares from the directors in payment of the purchase-money. Some of these shares were handed by him—as so fully paid—to certain other parties who assisted him in the formation of the company, and for these shares they stood on the register as fully-paid shares. The Master of the Rolls held that such was fraudulent, and he ordered each person to be placed on the list of contributories for the full value of the shares. On appeal the decision has been unanimously reversed by the Court of Appeal. Where is the difference? In the Blaen Caelen case the liquidator sold. The liquidator received shares 3*l.* paid for full purchase-money, and he allotted them to the members of the company he represented *pro rata*. We agree with what Mr. Chitty, Q.C., said on the hearing before the Master of the Rolls, that is quite time the 25th section was amended.

PATENT FUEL.

A trial of a new patent fuel—which was looked forward to with considerable interest by consumers of coal, and the result of which is likely to be very important to colliery proprietors and steamship owners—took place last week, at the City of Dublin Company's Works, Liverpool, in the presence of a large number of influential persons, among whom we noticed the representatives of the Inman, White Star, National, Brazilian, and other steamship lines.

The great objection to patent fuel generally is the predominance of pitch or tar in its composition and the expense of its manufacture, which render its use disadvantageous in many ways, whereas the patentee claims that his process is very simple and inexpensive, and that he has entirely overcome the disadvantages which have before prevented the use of patent fuel on a large scale, and that the fuel produced by his process would be superior in value to, and be more economical in every way than coal itself.

It is proposed to form a company for the manufacture of this fuel in the neighbourhood of the Dee, and the trial was made to satisfy a number of gentlemen who propose to invest largely in the undertaking that the above-mentioned statements of the patentee were correct. For this purpose a quantity of North Wales coal was obtained, and part of it manufactured into the fuel; both the coal and the fuel were then handed over to Mr. Nicholson, manager of the City of Dublin Company's works, to be tested in the well-known experimental boiler attached to the works, and the trial (as is always the case there) was conducted solely under his directions and of Mr. Ferber, his assistant, and entirely independent of the patentee or anyone connected with him, and the following report of Mr. Ferber shows the result:—Coal: Total water evaporated, 8000 lbs.; total coal consumed, 1036 lbs.; total time employed, 4 h. 10 m.; coal consumed per hour, 248·64 lbs.; water evaporated per hour, 1920 lbs.; water evaporated per lb. of coal, 7·772; pyrometer heat in flues, 934; temperature of waste heat in chimney, 611·5; clinker per cwt. of coal, 6·117 lbs.; ash per cwt. of coal, 1·568 lbs.; stowage cubic feet per ton of coal, 44·062. Fuel: Total water evaporated, 8000 lbs.; total fuel consumed, 952 lbs.; total time employed, 4 hours; fuel consumed per hour, 238 lbs.; water evaporated per hour, 2000 lbs.; water evaporated per lb. of fuel, 8·403 lbs.; pyrometer heat in flues, 961·75; temperature of waste heat in chimney, 621: clinker per cwt. of fuel, 4·571 lbs.; ash per cwt. of fuel, 1·428 lbs.; stowage cubic feet per ton of fuel, 33·658. This clearly shows that the fuel effects a saving in quantity, has greater evaporative power, greater heat, less clinker and ash, and stows in less space than coal by more than one-fourth. Mr. Ferber states—"This patent fuel is the best I have seen. It has very little smoke, stows away in less space than coal, and has very good heating properties, and I can, therefore, recommend it for marine purposes—No. 1 quality."

COAL-CUTTING MACHINERY.

Mr. Eaglesham, of Kilmarnock, and Mr. Rigg, his managing partner at Polton Colliery, near Edinburgh, have patented an improved coal-cutting machine, which is at present at work in one of the Polton pits, and has proved very successful. The machine consists of a frame, which is carried up between two end frames by means of studs or journals keyed to blocks which move up or down in slides formed in the centre of each of the end frames; thus, the whole machine, while held firmly between the end frames, can be raised, depressed, or canted to any angle that may be required. The means employed for this purpose are two powerful screws, passed through the blocks fitted in the slides, and acting as a nut. Other two screws are employed in almost the same manner to cant or angle the machine to suit the dip or rise of the seam the machine is engaged in cutting. The end frames are mounted on wheels, which run on rails. On the frame are placed two cylinders 6 in. in diameter and 10-in. stroke, which drive a spur-wheel, which again gives motion to a revolving wheel or disc, and on both sides of this disc, at regular intervals, are placed loose or revolving cutters of about 5 in. in diameter, pointed as pick points. Thus, when the disc revolves the cutting wheels, being loose on keys fastened to the disc, are revolving at ten times the speed of the disc. The machine propels itself by a chain, which is fast at one end, and works upon a small barrel.

The machine, when we saw it, was at work in a 3-feet coal seam, cutting in an underclay of a tough nature, and doing its work exceedingly well, the machine being placed at the angle of the seam, which was 1 in 8. It cut 3 ft. deep and 1 ft. forward per minute, being 50 yards per hour. We also saw it tried in the coal, which it cut very much easier than the clay. The peculiarity of the machine is its cutting-wheels, which, being loose and revolving, thereby lessen the friction, and the screws, with which the machine can be set to any angle. It is driven by compressed air, and the air average pressure necessary is 30 lbs., which is supplied by an air compressor on the surface. There is a peculiarity in this compressor—it is not jacketed, nor is there any water surrounding the air cylinder; instead of this there is a simple self-acting water jet, which at the same time cools the air and cylinder and lubricates the piston. The air compressor is driven by the pumping gear of the winding-engine, and the whole cost of the machine, compressor, and pipes will not exceed 300*l.* This machine, it is stated, can also be driven by an endless rope or chain, instead of compressed air.

As was to be expected, the colliers view with apprehension and distrust the introduction of machinery, and, like other workmen in similar circumstances, strenuously resist everything that may have the effect of cheapening production. Actuated by this mistaken policy, the miners in the pit where the coal-cutter has been introduced at Polton Colliery have refused to work there, though they do not object to work in the other mines of the same company. We understand that by these machines a saving of something like 1s. 6d. per ton is effected in the cost of production, while the coal is got much rounder and with considerably less breakage than formerly. There seems no reason to doubt that the "coal-cutter" will come to be extensively employed, and be the means not only of cheapening the price of coal, but also of preventing many of the deplorable accidents which commonly attend coal mining.—*Glasgow Herald.*

M. CHAUDRON'S METHOD OF SINKING SHAFTS.

A few days ago we stated that the directors of the Cannock and Huntington Colliery Company had decided to adopt the Chaudron process for the sinking of the pits at Huntington. This resolution was arrived at after great consideration, five of the directors, accompanied by two mining engineers, having visited Belgium and the North of France for the purpose of inspecting the pits sunk and sinking under the patent. The party consisted of Mr. F. F. Clarke (the Chairman), Messrs. Avins, Butler, Bayliss, Duignan, Samuel Bailey and J. W. Baker. We are enabled to supply the following interesting particulars of the visit:—

The party first visited Brouay, where a pit had been sunk, and was then being lined with tubbing. From thence they went to Marles, where one pit had been completed and another was in course of sinking; and from thence to Mons, where two pits were being sunk. At all these places the whole of the party were impressed with the extreme simplicity of the work, and the very perfect character of the arrangements. The pits at Mons were very wet, the water lying within a yard of the surface. Under M. Chaudron's process no water is drawn during the sinking, and if the sides do not stand light lining tubes are put in. Very few hands are required in the work, eight or ten men being sufficient for all purposes, and the machinery is calculated to go through any ground, from running sand to the hardest rocks. All the sinkings visited were through chalk measures, and occasionally through seams of solid flint, but the powerful machinery breaks through everything, and the spoon, which is estimated to hold from 5 to 6 tons, is let down, filled by a self-acting apparatus, drawn up, and emptied with as little trouble as an ordinary bucket: 28 pits have been sunk under this system at depths varying from 300 to 450 yards, including some requiring 250 yards of tubbing, and the system has not failed in a single instance. The tubbing is not in segments, as in England, but is cast in solid pieces of any diameter required, and 5 ft. high, with flanges. Sheets of lead are passed between each casting, and is then securely rivetted to its neighbour.

After going down all the pits which were sufficiently free of water, and carefully inspecting the tubbing, which was fixed, or in course of fixing, the directors visited the foundry at Château Lineau, where the tubbing is made, and where they saw it cast and tested with a strain of 420 lbs. to the square inch. The result of the visit was to satisfy the whole of the party that the sinking by the Chaudron process is more certain, speedy, and economical than any plan now adopted in this country, and that the tubbing used by M. Chaudron is vastly superior, safer, and cheaper than that used here.

— *Birmingham Daily Post.*

ON THE SINKING OF A PAIR OF IRON SHAFTS FOR AN EXPERIMENTAL AMBER MINE.

The supply of amber in commerce is mainly derived from the district of Samland, near Könisberg, in Eastern Prussia, where it occurs in a deposit locally called "blue earth," in a brown coal formation of the Tertiary age. Until lately amber was got chiefly by dredging and by collecting the fragments thrown up during heavy gales on to the sea-coast, or by shallow, irregular diggings a short distance inland. Recent geological researches having proved the continuity of the amber-bearing beds, the Prussian Government considered it desirable to start an experimental mine, to determine the conditions upon which concessions might be granted to private individuals, the right of working amber being one of the Crown privileges in Prussia.

The locality selected is at Nortyken, in Samland, where the amber-bearing bed has been found by boring to a depth of 140 feet. The section is as follows:—

Hard blue earth, without amber	Feet 2
Blue earth, rich in amber	4·9
Barren earth, no amber	1

The level of the bed is 18·7 ft. below the level of the Baltic. The overlying strata, 140 ft. thick, consist of sands and clays belonging to the brown coal formation. The works planned for laying out the mine consist of two winding shafts, two bore-holes for pumping, and the necessary engines and boilers. As a large quantity of water was to be looked for in sinking, it was decided to bore the shafts and line them with wrought-iron tubes. The depth of both shafts is about 147 ft. and the distance between them is 73·8 ft.

The boring head was a horizontal bar, carrying four chisels for cutting into the bottom of the hole, and two at each end radially for describing the outer curve of the shafts. It weighed about 17 cwt. The boring rods of wrought-iron were of two sizes, one being an inch square, used in boring percussively; and the other 2 inches square, used when a twisting strain was applied.

The sand pumps, or shells, for removing the detritus produced in the boring, were of two sizes; the larger being 3·1 ft., and the smaller 2·1 ft. in diameter, the length in each case being 6·4 ft. They were wrought-iron cylinders with clack valves at the bottom, but the suspension was so arranged that when brought full to the surface they could be emptied by being tipped like a bucket, without the necessity of being detached from the rods. The iron tubes lining the shafts are of best boiler plate, 0·8 in. thick, and 4·6 ft. internal diameter, in lengths of 4 ft., joined by internal rings of the same thickness and riveted. The tube is further strengthened internally by three longitudinal strips of iron of the same thickness. The bottom length of tube is of double thickness, and terminates in a cutting shoe of triangular section. The total weights of the lining tubes are 44 tons for shaft No. 1, and 45·6 tons for shaft No. 2, or rather more than 1 ton per lineal yard.

The sinking of the tubes was effected by pressure applied by screws. A cast-iron ring grooved underneath to fit the tube, and having four perforated lugs through which the pressure screws passed, was placed on the top of the tube, and the pressure was applied to the nuts by men working spanners. The lower ends of the screws were attached to a fixed point or abutment formed by a timber platform loaded with cast-iron; four screws were placed at equal distances around the circumference of the tube. The spanners were slung by tackles for convenience of manipulation, and from four to five men worked at each, so that from 16 to 20 men were employed in pressing down the cylinder. The amount of material displaced for each length of tube was about 53 cubic feet, which was removed in four or five fillings of the larger-sized shell in about six working hours. The sinking of the tube occupied about four hours, so that one complete length of the shaft tube was sunk and a fresh length slung and adjusted for riveting in each shift of 12 hours. From the sandy nature of the ground little actual boring was required, the use of the chisels being confined to cutting through beds of shale. The work was done in day and night shifts of 12 hours, with an average of 27 men. No. 1 shaft was completed in 121 shifts, and No. 2 in 106 shifts, including both boring and riveting. The latter operation occupied rather more than half the time. The total cost of the two shafts was as follows:—

Wrought-iron lining tubes	£4093
Boring plant	1259
Carriage	720
Labour for riveting and sinking	715 = £6787

The water level during the sinking was constant at 32·8 ft. below the surface, the shaft being about 46 ft. above the bottom of the valley.

—H. Kuhn, Zeitschrift für das Berg-Hütten- und Salinenwesen.—H. B., *in Proceedings of the London Institution of Civil Engineers.*

Cape Diamonds.—Referring to the character and extent of the various diamond fields, Prof. Tennant remarks that the number and quality of diamonds from the Cape are equal to those from the Brazils, which have chiefly supplied Europe during the last 80 years. About 10 per cent. of the Cape diamonds may be classified as of the first quality, 15 per cent. of the second, 20 per cent. of the third; the remainder, under the name of bort, are employed for cutting diamonds, and for the various economic purposes to which this valuable substance is applied by the glazier, the engineer for drilling rocks, the lapidary, and others. Many diamonds contain specks and cavities; these are placed in the hands of skilled workmen who are acquainted with the cleavage, and by careful manipulation they are frequently able to remove these blemishes, and so to obtain portions of the gems of the first quality for making small "brilliants," "roses," and "tables." The cutting and polishing of diamonds was carried on with great success in London 200 years ago; subsequently it was carried on chiefly in Holland, but several attempts have been made to re-establish the trade in this country.

The Nickel Mines of New Caledonia.—At the request of several gentlemen interested in the mineral discoveries, Mr. John Higgenson, of Noumea, New Caledonia, threw open for inspection, on Monday, a large quantity of nickle ore from the celebrated Bellair Mine. The lot inspected is the second shipment from this mine, and consists of 150 hogsheads. It seems the ore from this mine is altogether a new ore, being a very pure sample of hydrate silicate of nickel, and it is said will assay a very high percentage. Mr. Higgenson, who is interested in a great number of the principal mines in New Caledonia, being very much dissatisfied with the returns received from England of ore from the Mont d'Or mines sent home for treatment, has resolved to erect smelting works in Noumea. Commissioner Cluny, of the mining department in New Caledonia, has assayed a portion of the ore of the kind exhibited, the publication of which is reserved until Professor Leversidge, the Rev. W. B. Clarke, Dr. Leibus (of the Mint), and Mr. J. G. Latta, have given their results. The intention of Mr. Higgenson, after getting assays from these gentlemen, is to have a consultation, and learn if any difficulty really exists as to the treatment of the ore. Mr. Higgenson has been assured already that no difficulty exists, that a simple smelting process should suffice, the ingredients being silica, water-nickle, with a tincture of magnesia and iron. The reports received from Europe as to the consumption of the metallic nickel is very encouraging, it being much sought after in the introduction with other metals. It is especially prized for its hardness and non-corrosive properties, and when brought into an oxide it produces colours used very extensively in fireworks, and in the manufacture of French chintzes, cambries, &c. The prices quoted in the *Iron* newspaper and other mining journals, ranges from 11s. to 13s. per lb., but propably that price cannot be obtained for large quantities. The proprietors of other nickle mines in New Caledonia, among whom are several New South Wales capitalists, look forward with great expectation to the enterprise of Mr. Higgenson in the erection of works, as they could then send home the metallic nickel, and get immediate advances either in Sydney or Melbourne. By the present system of exporting the ore we learn that results cannot be obtained for at least 15 months. It is said that there are at most not more than half a dozen nickel mines at work in the world. A large increase in the quality produced would, of course, bring down the price, but on the other hand, a great cheapness of the article would increase its use in manufactures. In any case these nickel mines promise to be a great source of wealth to New Caledonia, and to help to increase the trade between that colony and Sydney.—*Sydney Morning Herald*, Sept. 22.

Technical Education in Canada.—Reference has several times been made in the *Mining Journal* to the praiseworthy efforts made by the executive of the University of King's College, Windsor, Nova Scotia, to offer extended facilities for the acquisition of sound technical instruction within the Dominion, and it is gratifying to find that the negociations for some time past going on with the neighbouring province have been satisfactorily completed. Wednesday, Oct. 20, was, says the Halifax *Morning Herald*, an auspicious day for the ancient University of King's College, Windsor, where, at a meeting of the Board of Governors held there, it was resolved to accept the overtures of the diocese of Fredericton, and establish within King's a joint theological School for the two bishoprics of Nova Scotia and Fredericton. While the progress of this University during the current academical year has already been forward at a rapid rate, it was still felt by those in charge of the College welfare that some such step as above mentioned would vastly enhance the value of its teaching to the youth of both provinces, and also serve to stamp King's College more deeply with the permanent character of a University for the maritime provinces. Most opportunely, then, during the discussion of similar projects by the friends of King's in Nova Scotia, has the Fredericton Synod moved in the matter, and henceforward Old King's may expect to advance with renewed vigour, while students throng her halls, and the church funds and scholarships of two dioceses replenish her coffers. But not only as a theological school will this University be benefited by Wednesday's action. With larger means, both of men and finance, the circle of its usefulness may be indefinitely extended; new chairs will be added for its increasing staff of professors, and King's College really fill the place for which it was originally intended, and become in every branch, also of secular education, the leading school of Canada.

FOREIGN MINING AND METALLURGY.

The state of the French iron trade remains much the same. If any change has occurred it must be said that the crisis in the trade has become more intense than ever. An engine, which almost entirely consumes its own smoke, has been tried during the last few days upon a new line of the South Parisian Tramways Company, running from the Rue de Rennes to the Porte de Châtillon. The experiment is considered to have shown progress, but not absolute perfection. The production of pig in France during the first half of this year amounted—according to official returns just issued—to 700,000 tons, of which 600,000 tons were made with coal, 70,000 tons with charcoal, and 30,000 tons with coal and charcoal mixed. The production of pig in the department of the Meurthe-et-Moselle in the first half of this year amounted to 150,000 tons. The production of iron in France in the first half of this year amounted to 380,000 tons, of which 90,000 tons were made in the department of the Nord. The production of plates in France in the first half of this year amounted to 53,000 tons, of which 6000 tons were made with charcoal. The production of steel in France in the first half of this year amounted to 140,000 tons. An official enquiry has been commenced upon the general question of French railway working; this enquiry will be continued until the middle of December. Contracts have just been concluded at 11*l.* per ton for 8606 tons of steel rails, for the St. Petersburg, Warsaw, and Nikelia lines. Creusot will furnish 2500 tons of these rails, and English works will supply the balance.

Copper has maintained previous prices at Paris, but quotations have been, to some extent, nominal. Chilian in bars, delivered at Havre, has been priced at 87*l.*; ditto ordinary descriptions, 85*l.*; ditto in ingots, 89*l.*; English tough cake, 89*l.*; and pure Corocoro minerals, 86*l.* per ton. At Marseilles, copper has been pretty well supported, but there have been only a few transactions. In Germany transactions in copper have been confined to the strict requirements of consumption; prices have not materially varied. Tin has been rather better supported upon the Rotterdam market. The Dutch Society of Commerce will hold a sale of 23,000 ingots of tin at Amsterdam, Nov. 30. Banca has been held at 52¾ fls. to 53 fls.; disposeable Billiton has brought 50½ fls. to 50¾ fls. Tin has been rather drooping at Paris. Banca, delivered at Havre or Paris, has made 94*l.*; Straits ditto, 90*l.*; and English, delivered at Havre or Rouen, 89*l.* per ton. The German tin markets have been generally quiet. Lead has been dull at Paris. French lead, delivered at Paris, has brought 22*l.* 16s.; Spanish, delivered at Havre, 22*l.* 12s.; English, delivered at Havre. 22*l.* 12s.; and Belgian and German, delivered at Paris, 23*l.* per ton. Lead has also been weak at Marseilles. In Germany the lead markets have scarcely varied; prices have shown a tolerable amount of firmness. Zinc quotations have been pretty well sustained at Paris. Silesian, delivered at Havre, has made 26*l.*; rolled zinc has brought 34*l.* per ton. In Germany business in zinc has been quiet, and prices have experienced no change.

The French industrial concern known as the Naval and Railway Blast-Furnaces, Forges, and Steelworks Company has just held its annual meeting. The report and balance-sheet presented on the occasion were little encouraging, the profits having been nearly all applied in providing for the depreciation of works and plant. A final balance of 619*l.* was carried forward to the credit of 1875-6. A rather similar report has been presented to the shareholders in the Firminey Forges and Steelworks Company for 1874-5. The profits of this company for the past year were to a very large extent employed in making good depreciations; the directors, however, made a sufficient deduction from previously accumulated reserves to enable them to distribute a dividend of 1*l.* 8s. per share for 1874-5.

In the Belgian coal basins the extraction follows a regular course, so as to provide for the requirements of the principal industries of Belgium. The iron trade of Belgium being, however, still comparatively dull and languid, Belgian forgemasters hesitate to conclude important contracts. Coal is in good demand for glassworks and sugarworks. Coal for domestic purposes is also disposed of extremely readily. A rise which had been noticed in coal in Belgium has been a little checked, in consequence, it is presumed, of foreign competition, and especially of German competition, the coal trade of Germany being reported to be in a precarious condition. Upon the whole, however, the winter coal trade may be said to promise pretty well in Belgium, considerable deliveries being in progress to France.

Supplies of coal for the winter appear to have been laid in to a large extent in France; nevertheless, prices have generally exhibited firmness. Firmness, and nothing more, is at the same time all that is vouchsafed to French coalowners. In the basin of the Loire there are complaints of accumulations of stocks, but the intelligence to hand from the Nord and the Pas-de-Calais is somewhat better, deliveries there presenting a certain activity. The coal production of France for the first half of 1875 is officially returned at 8,400,000 tons; of this production the Nord and the Pas-de-Calais furnished two-fifths, and the basin of the Loire and the Rhône one-fifth. The Gard and the Commentry, Creusot, and Blanzy districts f rnished another fifth.

In Germany numerous industrial establishments are either wholly or partially idle. Thus, at the well-known Borsig Construction Works, at Berlin, the staff has just been largely reduced, and the men still kept on are only working half time. The managers of the Wœhlert Works have also reduced the number of their workmen to 400, while it is not very long since that some thousands of men were employed. In the Grand Duchy of Luxembourg, again, metallurgical industry is also in a suffering condition. Belgian industrials are beginning accordingly to congratulate themselves upon being, at any rate, no worse off than their neighbours. The Cockerill, the Sclessin, the Thy-la-Château, and one or two other large Belgian companies are, indeed, assured employment in some branches throughout the winter. The Sclessin Company has just concluded a contract for a second gasometer for the city of Brussels. The first caissons for a great bridge over the Volga, of which the Sclessin Company has obtained a concession, have also been dispatched to St. Petersburg. The house of Adhemar, Le Roy, and Co., of Brussels, has concluded a contract with the Roumanian Government for the delivery to it of 350 goods trucks. Contracts for carriages, horse-boxes, switches, &c., are also about to be let by the Belgian Minister of Public Works for the Belgian State Railways. The imports of minerals into Belgium in the first nine months of this year are officially returned at 658,080 tons, showing an increase of about 87,000 tons as compared with the corresponding period of 1874. The imports of pig into Belgium

in September amounted to 19,440 tons, or about 4000 tons less than in September, 1874. The exports of minerals from Belgium in September amounted to 11,365 tons, the exports of rails to 3490 tons (of which 1800 tons went to Italy), the exports of plates to 1817 tons, the exports of merchants' iron and miscellaneous iron to 8129 tons, and the exports of nails to 894 tons, of which 316 tons went to England, and the greater part of the rest to Bremen and Hamburg. Upon the whole, the exports of manufactured iron from Belgium in September amounted to 15,181 tons, and in the first nine months of this year to 168,972 tons. England took 25,035 tons of iron from Belgium in the first nine months of this year; the Low Countries, 30,456 tons; France, 19,360 tons; Switzerland, 17,224 tons; Russia, 16,200 tons; Italy, 11,000 tons; and Turkey, 7857 tons.

FOREIGN MINES.

ST. JOHN DEL REY MINING COMPANY (Limited).—Advices received Nov. 1, 1875, ex Minho (s.), dated Morro Velho, Oct. 1:—

THE MEASUREMENTS OF THE EXCAVATION were taken this morning, and result as follows—viz.:—

	Fms.	ft.	in.
From mark to bottom of sump	13	3	0
From bottom of sump to end of ground east	2	4	9
From bottom of sump to top of first stope west	4	0	4
From top of first stope to top of second stope west	9	2	5
From top of second stope to top of third stope west	7	1	0
From top of third stope to top of fourth stope west	3	0	0
From top of fourth stope to top of fifth stope west	10	5	4
From top of fifth stope to top of sixth stope west	9	5	9
From top of sixth stope to top of seventh stope west	7	1	7
From top of seventh stope to bottom of driving west	4	1	4
Width of the lode in the sump	4	5	8
Vertical sinking for September	1	2	0

GOLD EXTRACTED TO DATE.—The produce for the second division of the month, a period of 10 days, amounts to 15,461·9 oits., and has been derived as follows:—

	Oits.		Tons.		Oits. per ton.
From mineral stamped	13,976·4	from	1736	=	8·050
Re-treatment	1,485 5	,,	—	=	·858
Total	15,461·9	,,	1736	=	8·908
Or	1782·5053 ozs.				1·0267 ounces troy.

The average yield is a fraction less than the preceding division, but the total produce shows a very favourable increase, effected by the means already explained.

The health of the establishment continues in a good and satisfactory state.

Advices received Nov. 15, ex Neva, dated Morro Velho, Oct. 16:—

GENERAL OPERATIONS.—Since I last had the honour of addressing you our work has been carried on with great regularity, and very good duty has been performed both in the mine and at surface.

MINE AND MINING WORKS.—The operations of stoping, sinking, and driving are being conducted vigorously and very successfully. No interruption of any consequence to the haulage has taken place, and as the free borers have attended well a very large quantity of mineral has been raised from the mine and sent to the spalling-floors for reduction. A quantity of quartz and killas is still being quarried from the western part of the excavation, which for the proper opening out and future effective working of the mine must be removed, and while this is being done the yield of the general body of the mineral may be expected to be rather low. A new stope, however, has now been taken up from the sump, whence good rich stone is being obtained, which I hope will effect a slight improvement in this respect.

The lode in the sump, which continues to open out favourably, is now about 30 ft. in width, and the driving westward under the roof has progressed since it was commenced on the 1st inst. about 6 ft., and this, considering the extra hardness of the rock at this part of the formation, is very good duty.

CONTRACT FOR STOPING, SINKING, AND DRIVING.—The work of carrying on these important portions of our mining operations has been let on contract to the miners for three months, dating from Oct. 1. The terms are based on the result of our operations during last month (September), and I am in hopes that this arrangement will work well for the company, as well as for the contractors.

PRODUCE FOR SEPTEMBER.—Considering that this has been the driest month of the season, and that the average yield of the mineral treated was rather low, I trust that the produce now advised will be considered favourable. It amounts to 46,040 oits, and has been derived as follows:—

	Oits.		Tons.		Oits. per ton.
From mineral stamped	41,583·2	from	5178	=	8·030
Re-treatment	4,456·8	,,	—	=	·860
Total	46,040·0	,,	5178	=	8·890

Equal to 5307·663 ozs. troy, or 1·0250 ozs. troy per ton.

COST AND PROFIT.

The produce being	46,040·0 oits.		
Less loss in melting into bars.	315·4 ,,		
	45,724·6 at 7s. 9d. per oit. =	£17,718	5 8
Cost, less sums receivable in reduction of the same		7,066	4 1
Profit		£10,652	1 7

With a lower produce I much regret to have also to advise an increased cost. The increase has been occasioned chiefly in the item of labour, having employed an additional force of free men to open out a roadway from the Rabello Woods for the purpose of bringing in timber, of which I have been in great need, also the native force in the mine have been more assiduous in their attendance, consequently gaining more wages.

REDUCTION DEPARTMENT.—From the returns for the past month, which go forward by this opportunity, you will observe that a very large amount of duty was performed in this department. The 5178 tons of mineral reduced by the stamps produced 5393 cubic feet of sand, which in the amalgamation process yielded at the rate of 8·538 oits. per cubic foot. The loss of quicksilver is this month more favourable, being only 177 lbs.

GOLD EXTRACTED TO DATE.—During this division very few interruptions took place, and a full supply of water being available for our machinery we were able to reduce a large quantity of mineral (195 tons per diem), but as the yield per ton is still rather low the result is not so favourable as I could wish.

The gold extracted during this the first division of October, a period of nine days, amounts to 15,215 oits., and has been derived as follows:—

	Oits.		Tons.		Oits. per ton.
From mineral stamped	14,026 0	from	1761	=	7·964
Re-treatment	1,189·0	,,	—	=	·675
Total	15,215·0	,,	1761	=	8·639

1754·0420 ozs. Troy = ·9965 oz.

The health of the establishment continues good.

The gold troop was dispatched from Morro Velho with 21 boxes, containing gold bars weighing 97,672 oits. = 11,359·9932 ozs. Troy, for shipment per Neva (s.)

N.B.—The gold has duly arrived.

The following telegrams have been received:—

On Oct. 19—Produce, nine days (first division of October), 15,000 oits. Yield, 8·6 oits. per ton. General work in mine and on surface going on well, and satisfactory duty being performed.

On Oct. 23—Profit for the month (September), 10,300*l*. All going on well.

On Nov. 1—Produce, eleven days (second division of October), 20,000 oits. Yield, 8·9 oits. per ton. General work in mine and on surface going on well, and satisfactory duty being accomplished.

On Nov. 11—Produce for the month (October), 57,500 oits. Yield, 8·9 oits. per ton. All going on well.

DON PEDRO NORTH DEL REY.—Report for September—Produce and cost: Produce, 401 ozs. troy, at 8s. 6d. per oit., 1477*l*. 14s. 6d.; cost, 2594*l*. 12s. 4d.: loss, 1116*l*. 17s. 10d.—First division of September: Produce weighed 1241 oits.; remittance (one month), 3579 oits. bar gold. The following telegram from Rio Nov. 8, referring to a later date than the above advices, was received on the 9th inst.:—Produce cleaned up (on account of October), 2500 oits. Estimated total for the month (October), 3100 oits.

RICHMOND CONSOLIDATED.—Cablegram from the mine at Eureka, Nevada.—Hall, London: Week's run, $43,000; bullion assay rather disappointing. New discovery opening well, sunk a new winze 23 ft. below the 600 on old ore body; good ore, flattening fast.—RICKARD.

— Oct. 26: Since my last there is no improvement in the drift from winze, below the 600; the ore we cut did not last, as it was only a narrow vein; we are still drifting in limestone and ledge matter mixed. We are also sinking from the stope; we are only down a few feet, where it is looking very well, and the ore of very high grade. The winze sinking on the west side of the hill, by the Eureka Consolidated, is down 80 ft., and the bottom in ore and on our ground; this will be a very fine discovery if the ore body in this side of the hill should make down, as it has every appearance of doing. The 700 station at Richmond shaft, is completed; we are now getting out the water from the shaft, and shall resume the sinking in a day or two. Since my last we have met with ledge matter and a regular wall in the 700 drift; the ground to day is looking very favourable for meeting ore shortly, and is very much easier for working. I am expecting to have something good to report from this place in a short time. The rise in back of the 700 is suspended for the time; we are now drifting from it; the end of the drift is in limestone, with occasional stones of ore. To day it is looking better than it has for several days past. The winze, or rather drift from the winze, below the 600, is not looking quite so well as it was; there is about 18 in. of ledge matter. The winze sinking from the stope at the 600 is looking very well, and all in good ore; the ore body seems to flatten in this direction, and it looks very promising for a good ore body at this place. The stopes between the 500 and 600 are looking very well. We are not able to hoist as much ore from these levels as we would wish; on account of our limited hoisting power we are obliged to draw more from the upper levels and on the west side of the hill, and the ore from these parts of the mine is of rather low grade. Nothing new in the 200 cross-cut, or in the rise above the 400 fm. level. I went underground in the champion on Saturday with Mr. Donnelly, and had a survey made of the ground in which the Eureka Consolidated have sunk their winze, and I find that the bottom is about 16 ft. on our ground, and in good ore. As soon as they were convinced that they were without their lines they ceased working on our ground; this winze is down about 80 ft., and about 50 ft. below where we are working, and this shows clearly that the ore makes down. The new machinery is being built with all possible speed. The house is up, and nearly finished roofing, the loading is also being built rapidly, and the engineer has promised to have everything ready by Nov. 22. I think he will get through with it if we have no hindrance, and when it is completed we shall then be able to draw more ore of higher grade from the bottom levels, and keep the returns more uniform. We have had hard times of it the past few months, but things are looking much better now, and hope to be able to give much better returns as soon as the new machinery is completed.—Smelting: The three furnaces have been working pretty well all the week, with the exception of losing some time in patching. The ore smelted during the past week was of very low grade, the Richmond ore only assayed 15 per cent. lead and $45·24 gold and silver, so you can see by this that it is impossible to get very high returns from such ore. As I said before, as soon as we have the hoisting machinery on this state of things will change.—R. RICKARD.

EBERHARDT AND AURORA.—The directors have received from the mines 19 bars of silver, value 5000*l*. This remittance completes the produce for October, 19,400*l*.; all of which the directors have now received. The ore has increased in richness in the lowest levels.

JAVALI.—Capt. Sohns, Oct. 5: Thirty stamps worked 23 days, crushing 1760 tons quartz, producing 498 ozs. gold, at an average of 5 dwts. 16 grs., valued 1450*l*. The expenditure was 873*l*. 17*l*. 10s., leaving a profit of 576*l*. 2s. 2d.

SANTA BARBARA (Gold).—The directors have received, per Neva, the usual monthly advices from Mr. Hilcke, dated Pari, Oct. 14, giving the results of the working at the mine for the month of September. During September 1020 tons of mineral were stamped, yielding 3·425 oits. per ton, or a total of 2494 oits. of gold, which, valued at 8s. 6d. per oit., amounts to 1484*l*. 19s. as the estimated value of the produce for the month. The mine working cost for the same period was at exchange 27¼d.—996*l*. 16s. 1d., thus leaving an estimated profit of 488*l*. 2s. 11d. for September: 13 tons of mineral remained unstamped on Sept. 30. The capital expenditure during September amounted to 28*l*. 14s., for "senzala," or new black's houses. In the mine but little change had taken place in the appearance of the lode since last advised. In the stopes between Nos. 1 and 2 levels the lode was not looking so well; the top part, contrary to expectation, was less productive than in previous months, hence the somewhat lower average yield of the mineral stamped than during August. The water supply was good.

NEW ZEALAND KAPANGA (Gold).—James Thomas, Oct. 1: The cross-cut at the 50 has been driven the past month, ending Sept. 25, 5 fms, 5 ft., and since that date to Oct. 1 2 fms. 5 ft., the total length driven 31 fms. 1 ft., leaving 18 fms. 5 ft. to drive to the lode. I remarked in my last that the ground was then rather hard, it continued so for three weeks, retarding the driving progress considerably. We have also been unfortunately delayed for nearly a week, the stool or plummer block of the winding-engine shaft carrying the crank connected to the flat-rods for pumping suddenly broke in pieces. I am pleased to say our engineer and smith have repaired the stool, making it even stronger than it was before, and the pumping resumed as regular as before. This delay of some days also put our driving operations back 3 fms. this month. I am glad to say the ground in the cross-cut has changed much better for driving during the past week. The character of stone is nearly the same as reported and sample forwarded last month, with the exception of its being softer and a better channel of country. If the ground in the cross-cut continues of the same character during the present month, and no delays by breakages occur, I hope to be able to report some 14 or 15 fms. driven in my next from the remaining 18 fms. 5 ft. to go through, which will bring us very near the lode. The operations attending the stamps erection are proceeding most satisfactorily. Since my last I have had the whole of the foundation logs of huge size brought from the bush to the mine, the earthwork excavation for foundations sufficient for 25 heads of stamps and battery house also finished, the logs being firmly and securely built with concrete, and checked into each other, bolted together, alternately transverse and longitudinal. I may say they are all completed in a most substantial manner to withstand the constant vibration attending the stampers when working. This has been a slow, tedious, and heavy piece of work to accomplish. The carpenters are busily engaged building the battery-house, making the amalgamating tables, with other various inside fittings connected thereto. The engineer is hard at work fixing the stamping machinery and driving gear connected to the winding-engine, &c. I hope in the course of six or seven weeks to have two stamp boxes or mortars containing five stampers in each box quite ready for crushing to commence with; additional stampers can be erected as fast as they are required, the foundation being already fixed. The machinery and pitwork departments were never in finer working order, or performing their duties better than at present. I am pushing on the several works with all speed possible, and am much pleased to inform you that the works in every department, both underground and at surface, are going on rapidly and quite satisfactorily.

EXCHEQUER (Gold and Silver).—Lewis Chalmers, Oct. 29: Since writing you on the 18th I was obliged to go to Carson to get a fresh supply of powder, candles, fuse, &c., hence the late date of this report. I have got supplies enough to last the winter. The engine-shaft is now down 280 ft., in hard porphyry on the west side, and a rotten caving matter on the east. The stope at the 140 is 30 ft. up from the drift, and 52 ft. long, and produced 30 carloads of fine ore during the week. I have discontinued the 100 for a time. Good ore in the face of the 200, and back, for 100 ft. and more, all untouched. I shall commence vigorous stoping here when my new force arrives. At present I have all the ore my team can haul, but I ought to put on another team, even if I have to buy one, so as to rush all the ore to the mill before winter shuts the road. The team leader is better. I had got out 125,000 bricks for my furnaces when a steadily falling barometer warned me of a coming storm. I immediately stopped moulding, and ordered fires on in the kiln, and not a moment too soon, for on came the rain and hail, but though we sustained a trifling loss I have now got the kiln completely roofed in, and burning well. The threatening aspect of the weather compels me again to renounce part of my programme, and to give up the idea of erecting furnaces until the spring, running meantime my present reverberatories and mill, so as to commence bullion shipments without delay. I think this the prudent course. Before the new battery could be cast and finished in San Francisco we shall probably have a snow storm that would keep it at Carson, or, should I succeed in getting it on, it would have to be put in at the very worst season of the year, lay the mill open during storm, and delay bullion. Meantime I have ordered the battery (10 stamps), and shall have it on the ground as soon as possible.—N.B. Messrs. Johnson and Matthey have assayed the sample of ore taken from the 200 ft. level with the following results:—Gold, 12·75 ozs.; silver, 2594 ozs.—or about 700*l*. sterling per ton in value.

LUSITANIAN.—Nov. 9: Palhal: We have resumed sinking Taylor's engine-shaft below the 180 fm. level; the lode is 7 ft. wide, composed of quartz. River shaft, below the 140, is suspended for the present. In the rise above the 150, against River shaft, the lode is 3 ft. wide, composed of flookan and quartz. In the 110 cross-cut, south of Basto's lode and east of River shaft, the ground is a very hard, fine gneiss.—Levels on Basto's Lode: The 180, west of Taylor's, yields small quantities of ore; lode 2½ ft. wide. The 170, west of ditto, contains a lode 1 ft. wide, composed of quartz. The 160 above, has a lode of the same size and character. In the 150 east the lode is 2½ ft. wide, unproductive. In the 150 west the lode is composed of quartz and country. East of River shaft the 28 is advancing in a lode 5 ft. wide, showing spots of lead. In the 50, west of Taylor's shaft and west of the slide lode, the lode is 6 in. wide, containing quartz and stones of lead. The Mill lode at the 70, east of River shaft, is 1 ft. wide, with a good wall, but of no value. The Caunter lode at the 150, west of Taylor's, is 1 ft. wide, composed of quartz and faces of ore.—Carvalhal: In the 60 cross-cut, south of Incline shaft, the ground is hard and dry. We have seen no branch in the end for the last 6 or 8 metres, and have now discontinued driving it. We have commenced opening on one of the branches passed through in this cross cut in the western side; it is small, but contains stones of lead.

BENSBERG.—C. Craze, Nov. 15: Victoria shaft was sunk 1 ft. 9 in. last week, the sumpmen also put in another set of timber, secured shaft, &c. There is no change in the lode here since my last, still producing 2½ tons of ore per fathom. In the 14 fm. level, west of this shaft, the lode appears to be thrown north by the cross-course. I have to-day put the men to cut north into what looks like the south wall of the lode, and I am pleased to say the first hole blasted has brought out some fine stones of ore; I shall be able to speak more as to its value in my next. The stope in the back of this level has improved a little, now worth 1 ton of ore per fathom. The 14, east of this shaft, looks promising, with spots of ore in it.—New Shaft: This shaft is of the same value as last reported—1½ ton of ore per fathom. A piece of ground having turned out of the north side in the winze, west of shaft, we are obliged to suspend sinking until this ground if secured; the lode in the bottom of the winze is worth 2 tons of ore per fathom. Stuff put to dressing 77 tons, producing 4½ tons ore of 44 per cent.

MENZENBERG.—R. K. Roskilley, Nov. 17: Dickins's Engine-Shaft: The 45 cross-cut is extended west of shaft 48 fms. 5 ft.; the rock in the end consists of a beautiful grauwacke, which contains some splendid spots of yellow copper ore. Here we have a very fine channel of mineralised ground, and which within the past day or two has become more favourable for driving, therefore we hope to make better progress at this point. The lode in the 45, driving south of the cross-cut, is 3½ ft. wide, composed principally of spar, with very fine spots of copper ore intermixed—a kindly lode, and promising an improvement.

[For remainder of Foreign Mines, see to-day's Journal.]

EXCHEQUER (Gold and Silver).—Extracts from the "Alpine Chronicle," Oct. 16—"Rich Ore: The assay of ore from the late strike in the Exchequer Mine, made by the manager, Mr. Chalmers, footed up $5794 per ton. The ore contained about $34 in gold, the balance being in silver. This is the best assay, we believe, that has been made in this county. The ore being assorted and sacked at the mine will average $2000 a ton. When the new furnaces are started up the Exchequer will astonish the San Francisco mining sharps, and make the Virginia Consolidated look to its laurels." "Exchequer: Mr. J. J. Cooper, of London, the mining engineer, who came here to examine the Exchequer Mine, reports that it is for its depth the best he has ever seen. His opinion is significant." Extract from "Carson Valley News," Oct. 16—"Rich ore continues to be taken from the Exchequer Mine. The contractors are sinking at the rate of 10 ft. per week, and expect to have the shaft down 300 ft. within a month, and upon this depth being reached another contract of 100 ft. will be let; the intention is to sink 600 ft."

ROCK-DRILL AND AIR-COMPRESSOR.—In the air-compressor and drill invented by Mr. Buckminster, of San Francisco, there are several features of novelty. The drill has three clamps, one for holding the drill on the tripod, another for holding the drill tool in position, and the third for holding the weights on the leg of the tripod. The movement for turning the drill point so as to present the cutting faces in a different position at each blow is obtained by a notched sectional sleeve moving freely between two fixed heads of the piston, having two diagonal slots acted and operated upon by fixed lugs passing through the sides of the cylinder. When the piston is on its down stroke the form of these notches allows the sleeve to turn full upon the pistons. On the return stroke the face of the notches slide upon each other, throwing the head out against the fixed head of the piston, and binding them sufficiently to turn the drill. One of the clamps which is improved is that for holding the sliding ways of the drill to the column on the tripod. This clamp is so constructed that the drill carriage can be turned clear round the column, and can also turn in a complete circle on the head of the clamp. The clamp is made with a hinge and hinged bolt, and has a sliding wedge, being so constructed that in turning upon this hinged bolt the clamp is made rigid on the before-mentioned carriage, and also clamped rigidly on the column. The weights are secured on the legs by an eccentric. The air compressor is made compact and portable. Mr. Buckminster opens the induction valves mechanically, and holds them open at the end of the stroke to obtain a full cylinder of air. Most machines open against the tension of a spring, and consequently the valve closes before it quite reaches the end of the stroke, and before the cylinder is full of air. The eduction valves are equilibrium piston valves that work noiselessly. Another feature is a water governor, to regulate the inflow of water to the machine, so that it will correspond in amount with the velocity of the machine. When running fast more water is needed to keep the air cool and keep the cylinders full of air. The "Mining and Scientific Press," from which these details are taken, states that the outside of the drill presents a simple appearance, and the inside appears equally simple. The drill is so easily handled in the tripod with the new clamps that the inventor states it will put in holes in more difficult places than can be done by hand.

ALBERTITE.—At a meeting of the Geological Society of Glasgow Mr. Arthur Pratt exhibited a specimen of albertite from the mines, of Albert county, New Brunswick, Nova Scotia, and it was supplemented by other specimens shown by Mr. D. C. Glen, C.E., and Mr. John Young, F.G.S. The latter, in making some explanatory remarks, said—"Albertite is a bituminous mineral, as black and as brilliant as jet, with a fine conchoidal fracture. It is found filling veins that traverse the strata in a nearly vertical position, and varying from 1 to 16 in. in thickness. It is closely related to asphalte, melts in the flame of a candle, and dissolves in naptha and other solvents, so forming a varnish. On an average it yields 110 gallons of crude oil per ton, of which 70 per cent. may be made into a brilliant lamp oil. Albertite has been discovered in Sutherlandshire in rocks near the junction of the Old Red Sandstone, with the metamorphic schists, and is said to be of quite as fine a quality as that from the New Brunswick mines. Unfortunately it has only been met with in veins rarely exceeding from 1 to 2 in. in thickness, which renders it commercially unavailable. By many this mineral is erroneously considered a kind of coal.

HOLLOWAY'S PILLS.—Influenza, bronchitis, asthma, and kindred complaints too frequently present themselves as a fierce and pitiless plague at the fall of the year, and little less deplorable is the fact that with darkening days and changing temperatures the digestion becomes impaired, the liver disordered, and the mind despondent, unless the cause of the irregularity be expelled from the blood and body by an alterative like these pills. They go directly to the source of the evil, thrust out all impurities from the circulation, reduce the distempered organs to their natural state, and correct all defective or contaminated secretions. Such easy means of instituting health, strength, and cheerfulness should be instantly available to check the first symptoms of approaching illness.

COAL-CUTTING MACHINERY.

W. and S. FIRTH undertake to CUT, economically, the hardest CANNEL, ANTHRACITE, SHALE, or ORDINARY COAL, ANY DEPTH, UP TO FIVE FEET.

Apply,— 16, YORK PLACE, LEEDS.

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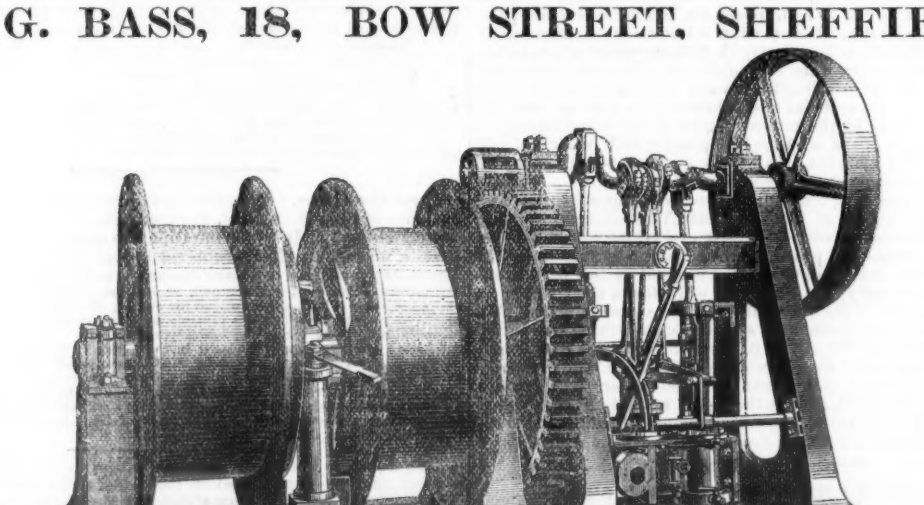

IMPROVED DESIGN of Engine for HAULING, for use with either Steam or Compressed Air.

Takes less room, and can be supplied for less money, than any other Engine of same power.

May also be had with single drum for winding.

BLAKE'S PATENT STEAM PUMP.

MORE THAN 8000 IN USE.

SOLE MAKERS FOR GREAT BRITAIN,

S. OWENS & CO.,

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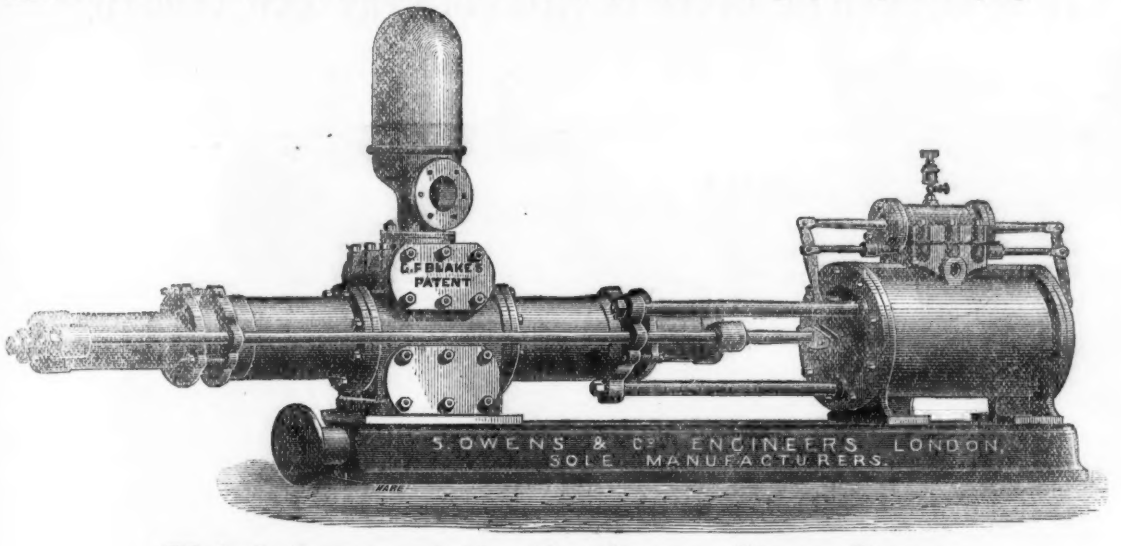
These PUMPS from their SIMPLICITY, RELIABILITY, DURABILITY, and ECONOMY are SPECIALLY SUITED FOR MINING PURPOSES, where large quantities of water require to be raised from great or medium depths with CERTAINTY. They are double-action in their construction, throwing a constant stream of water, can be made of any stroke to suit the space in which they have to work, can be arranged with any combination of steam and water cylinders to suit the pressure and lift against which it is desired to work them, are made of the very best materials and highest class of workmanship, and all working parts can be readily got at by any ordinary workman, and replaced if necessary by a duplicate part (all such being interchangeable) in the shortest possible time. For situations where gritty and sandy water has to be pumped the DOUBLE-PLUNGER PATTERN is recommended. Where space is limited the PISTON PUMP is better suited, a novel feature of which is the PATENT REMOVEABLE LINING, which can be removed in a few minutes and substituted with a new one, without disturbing any other part of the pump.



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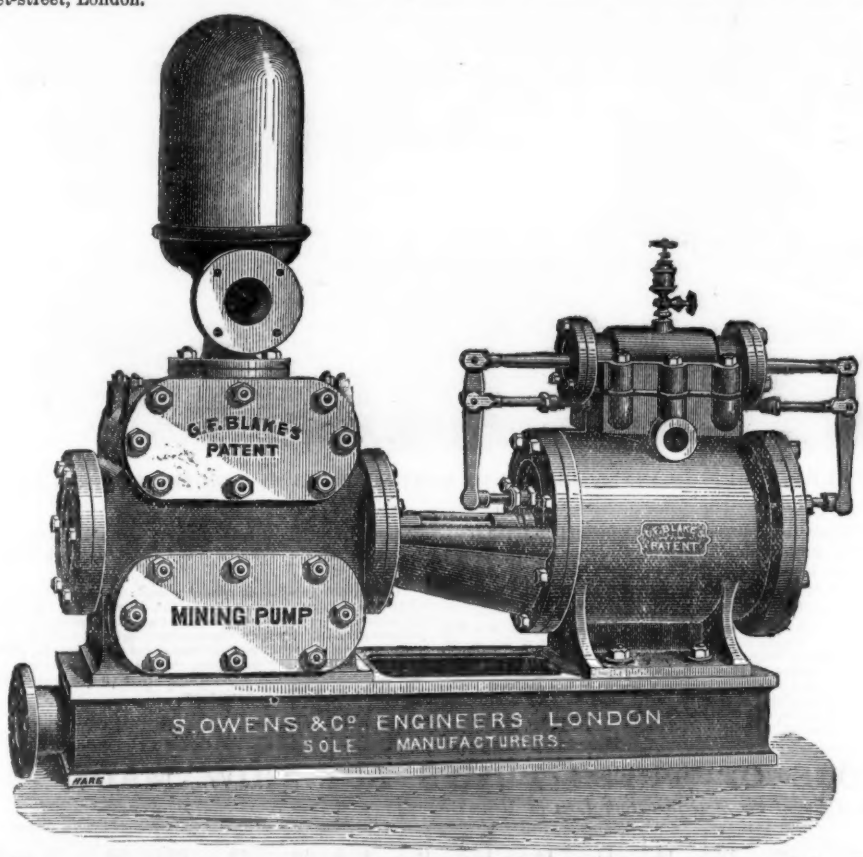
S. OWENS AND CO.,

In placing the BLAKE STEAM PUMP before the mining world, believe they are offering the BEST, MOST RELIABLE, and ECONOMICAL PUMP that has yet been made, and solicit an inspection of various sizes in operation at their works, Whitefriars-street, Fleet-street, London.



Blake's Improved Mining Pump, with Patent Removeable Lining to Pump Cylinder,

Any combination of these Pumps may be had to suit circumstances. The following are some of the SIZES SUITABLE FOR MINING PURPOSES:—

Dia. of steam cylinders.. In.	12	12	12	12	14	14	14	16	16	16	16	18	18	18	18	20	20	20	20	24	24
Dia. of water cylinders.. In.	3	4	5	6	4	5	6	4	5	6	8	4	5	6	8	5	7	8	9	6	8
Length of stroke ..... In.	18	18	18	24	24	24	24	24	24	24	24	24	30	30	30	30	30	36	36	36	42
No. of strokes per minute..	30	30	30	30	25	25	25	22	22	22	22	22	22	22	22	20	20	17	17	17	15
Quantity in gallons per hour, approxmately ...	1440	2610	4200	5940	2940	4620	6600	2646	4158	5940	10620	2646	5160	7500	13260	4586	9000	12360	15660	6720	12000

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Can be supplied for any size pump to effect a saving of fully 30 per cent. in the consumption of fuel, greatly increasing their efficiency.

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BLAKE'S DONKEY PUMPS FOR FEEDING BOILERS KEPT IN STOCK.

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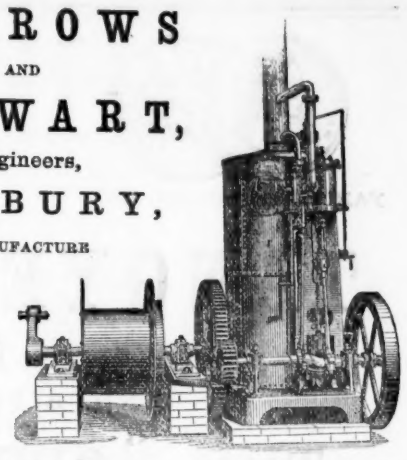
Semi-Portable AND Vertical



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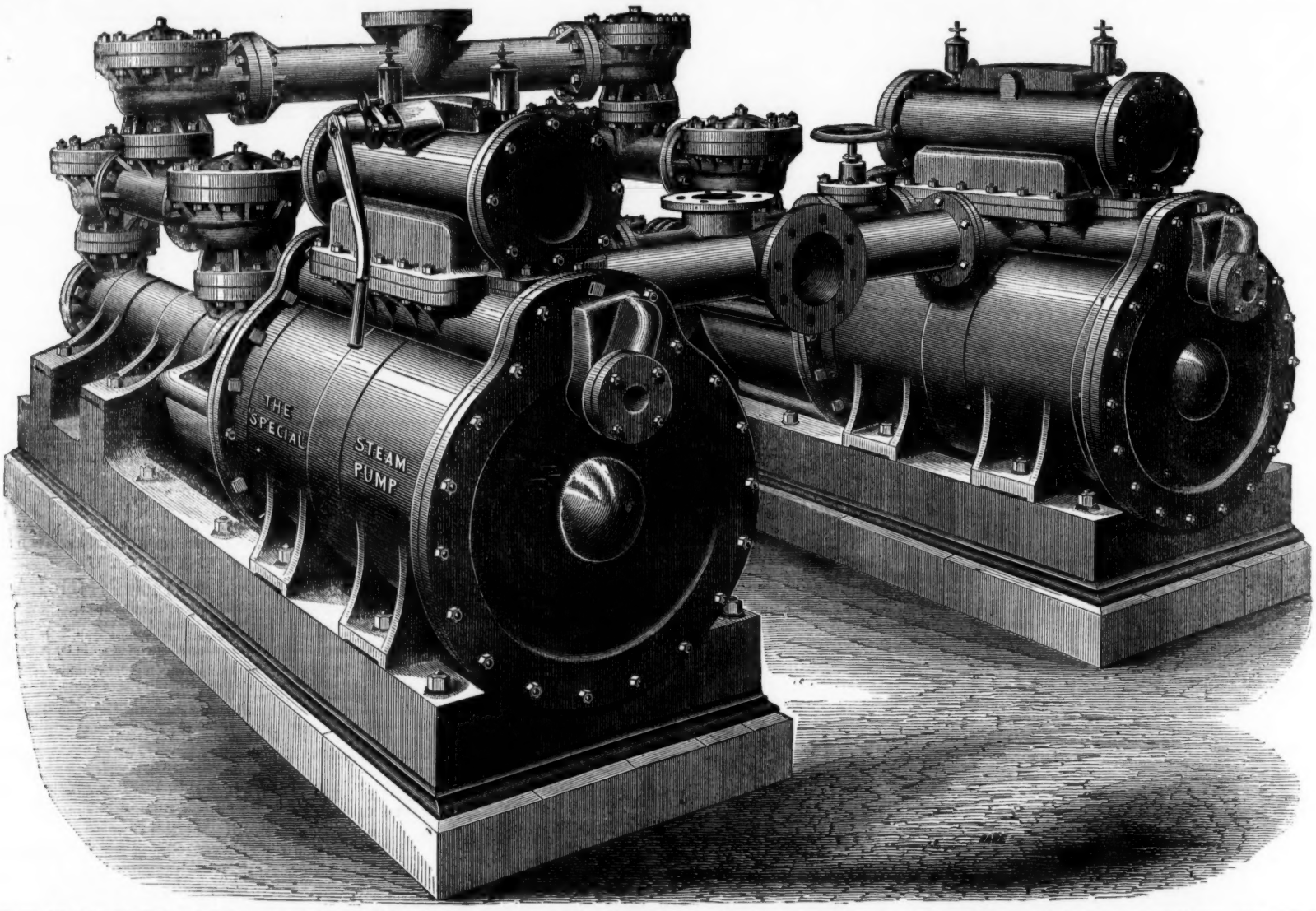

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The following extract from a letter, received by Tangye Brothers and Holman from J. Bigland, Esq., dated Feb. 25, 1875, refers to a "Special" Direct-acting Steam Pumping Engine supplied four years ago to Messrs. Joseph Pease and Partners, for the Adelaide Colliery, Bishop Auckland. The engine is throwing about 8000 gallons per hour, 1040 feet high, in one direct lift:—

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Extract from a letter received by Tangye Brothers and Holman from W. H. Eagland, Esq., dated Feb. 27, 1875, in reference to a "Special" Direct-acting Steam Pumping Engine supplied two years ago to the West Yorksnire Iron and Coal Company near Leeds, to throw 16,000 gallons per hour, 465 feet high, in one direct lift:—

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Ditto of Water Cylinder .....In.	3	3	3	4	3	4	3	4	5	4	5	6	4	5	6	7	5	6	7	8	5	6	7
Length of stroke.....In.	24	24	24	24	36	24	36	36	36	36	36	36	36	36	36	36	48	36	36	36	48	48	36
Gallons per hour approximate	1830	1830	1830	3250	1830	3250	1830	3250	5070	3250	5070	7330	3250	5070	7330	9750	5070	7330	9750	13,000	5070	7330	9750
Height in feet to which water can be raised with 40 lbs. pressure per sq. in. of steam or compressed air at pump	325	425	540	300	665	375	960	540	345	735	470	330	960	615	426	312	775	540	400	300	1058	740	540

CONTINUED.

Diameter of Steam Cylinder .....In.	21	21	21	24	24	24	24	24	26	26	26	26	26	30	30	30	30	30	32	32	32	32	32
Ditto of Water Cylinder .....In.	8	9	10	6	7	8	9	10	7	8	9	10	12	8	9	10	12	14	8	9	10	12	14
Length of stroke.....In.	36	36	36	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
Gallons per hour approximate	13,000	16,519	20,000	7330	9750	13,000	16,519	20,000	9750	13,000	16,519	20,000	30,000	13,000	16,519	20,000	30,000	40,000	13,000	16,519	20,000	30,000	40,000
Height in feet to which water can be raised with 40 lbs. pressure per sq. in. of steam or compressed air at pump	413	326	264	960	700	540	427	345	827	633	500	405	282	840	665	540	375	275	960	758	625	426	313

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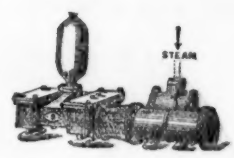

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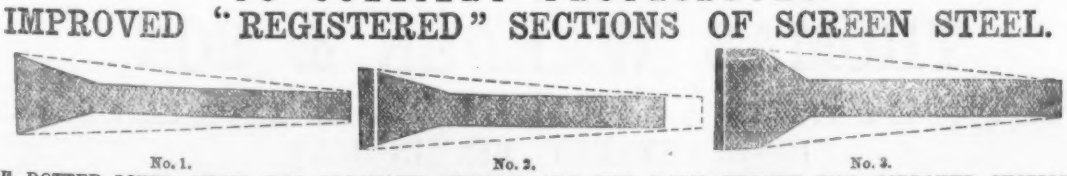

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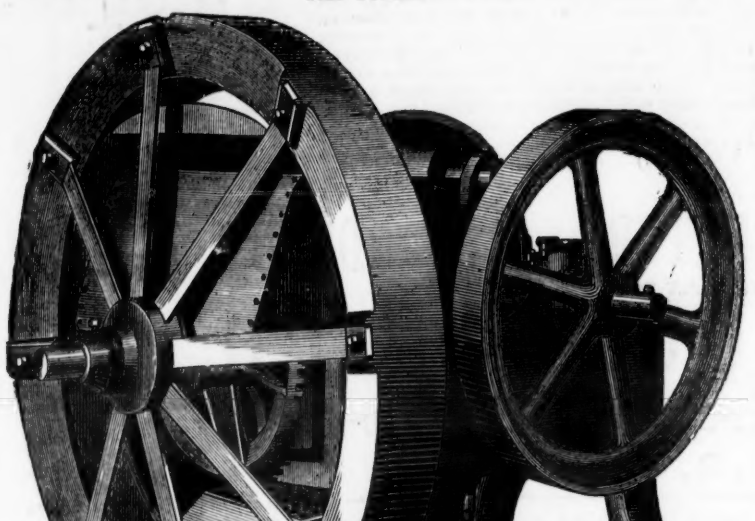

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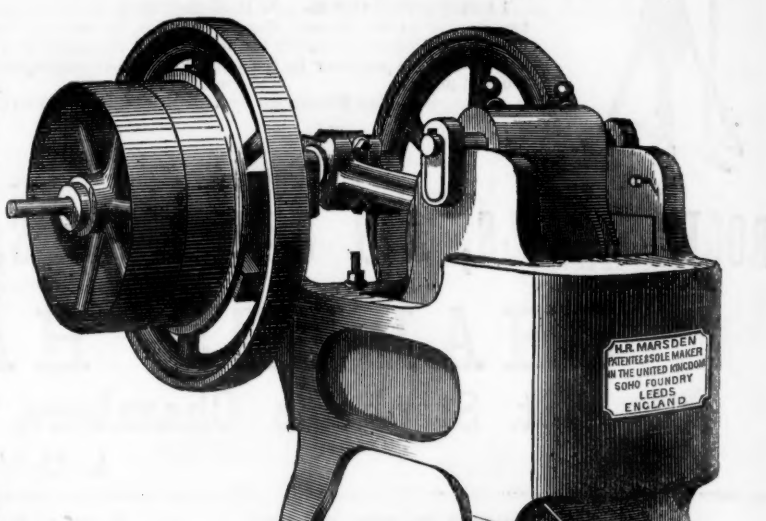

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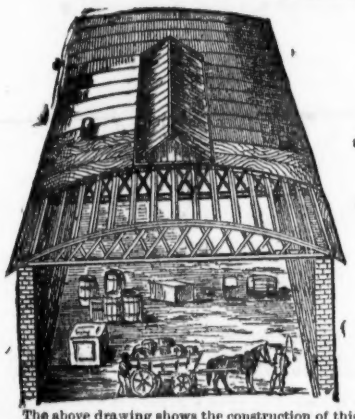

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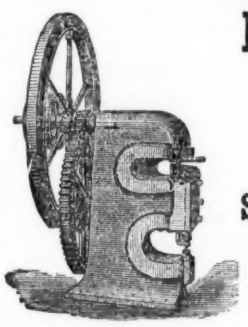

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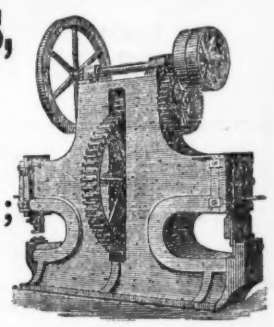

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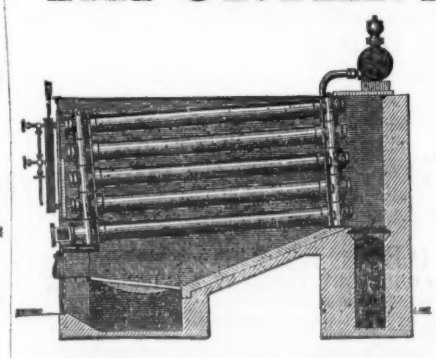

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Printed by EDWARD MIDDLETON, and published by HENRY ENGLISH (the proprietors), at their offices, 26, FLEET STREET, E.C. where all communications are requested to be addressed.—November 20, 1875.